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THE LION'S STORYTELLER: UNDERREPRESENTED MINORITY STUDENTS'  
USE OF PSYCHOLOGICAL NEEDS TO PERSIST

by

Constance Rochelle Tucker

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Major: Educational Psychology and Research

The University of Memphis

May 2015

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## **Acknowledgements**

All powerful, untamable  
Awestruck we fall to our knees, as we humbly proclaim  
You are amazing God.

-Chris Tomlin

To my committee: Drs. Magun-Jackson, Mueller, Winsor, Murrell, and Hsueh, thank you for pushing, pulling, and cheering me to the finish line.

To my family and friends (present and past): I feel very blessed to have the opportunity to love on you and even more humbled to be loved by you.

To my parents: Thank you for planting the seeds in me. I am inspired by your encouragement, high expectations, and unconditional love.

Maurice: What God has put together, let nothing tear apart. You held it down so that I could accomplish a dream. You are exceptional. Thank you.

Micah, Maliyah, and Makaylah: Walk in your wisdom. I am so proud to be your mom.

## **Abstract**

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URM students' educational persistence to health careers is hindered by numerous demographic, social, and motivational barriers. The current study examines how motivational variables, specifically the satisfaction of autonomy, competence, and relatedness, impact URM health students' educational persistence. This study assesses (a) what psychological needs are satisfied when URM students participate in supportive academic and social experiences; (b) how need satisfaction supports URM students' abilities to persist in the face of challenge; and (c) the extent in which previous research and the current study are confirmatory or contradictory. The current qualitative study utilizes storytelling and photo-elicited interviews, memo writing, and previous literature to explore five URM students' experiences as they persisted to health careers. Narrative inquiry, semiotics, and constructivist grounded theory meta-analysis were used to develop five case studies, eight study themes, and one meta-analysis. The results provide a more comprehensive view of URM health students' educational persistence experiences.

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## **Chapter 1: Introduction**

The focus of the current study is to explore how the satisfaction of basic psychological needs impacts the educational persistence of prehealth (i.e., medicine, dentistry, and pharmacy) underrepresented racial minority (URM) students. URM students, i.e., those who self-identify as American Indian, Black, Latino, Pacific Islander, or multiracial/multiethnic, are noted as having difficulty persisting to health careers (Bowman, Brandenberger, Hill, & Lapsley, 2011; Gurin, Dey, Hurtado, & Gurin, 2002; Russell & Atwater, 2005; Seymour, 1992; Sullivan, 2004). While the terms Latino and Hispanic describe a wide range of historical and geographic influences, for the purposes of the current study, students from Latin America and Spanish-speaking countries will be referred to as Latino. In fact, Sullivan (2004) asserted that URM students were missing persons in healthcare.

To address the lack of medical professionals in healthcare, many educators and researchers have focused on strengthening the pipeline from higher education to professional school (Levitz & Noel, 1990; Woodard, Mallory, & De Luca, 2001). As a result of systematic recruitment and retention efforts (Hinrichs, 2010; Howell, 2010; Kim, 2005; Perry, 2013) and the diversification of the US population (Bernstein, 2012), URM students are increasingly enrolling in institutions of higher education. However, while the number of URM students, Latinos in particular, in higher education has increased, the educational persistence of these students has not followed the same pace (Villalpando, 2004). For the purpose of the current study, prehealth student educational persistence is defined as a student's continual pursuit of a science, technology, engineering, and math (STEM) major leading to the granting of a degree, as well as a

student's sustained intent to apply to a health professional school. Students with STEM majors are included in the definition of prehealth persistence as far more STEM majors apply to health professional schools than non-STEM majors, on the order of 13:1, and STEM majors matriculate into medical school in higher total numbers than non-STEM majors (Association of American Medical Colleges, 2013; Jung, 2000). To fully understand and improve the educational persistence of URM students, research literature in large part continues to examine the reasons URM students struggle to persist to STEM degree completion and apply to health professional schools.

The barriers and challenges hindering URM prehealth students' persistence are well documented and include demographic, social, and motivational variables (Arbona & Nora, 2007; Bensimon, 2005; Perez, Cromley, & Kaplan, 2014; Tierney & Hagedorn, 2012). Demographic variables include race, language, and socioeconomic status (Rao & Flores, 2007; Thurmond & Cregler, 1999). Social variables include academic challenges, ineffective advising, and poor campus climate (Cole & Espinoza, 2008; Garcia & Hurtado, 2011). Motivational variables include loss of interest and negative perceptions of educational persistence. To date, the majority of motivational literature that examines URM educational persistence uses three major theoretical frameworks: locus of control, attribution theory, and self-determination theory (SDT). This study focuses on the latter theory, SDT, as use of SDT allows for expanded understanding of a previously conducted pilot study (Tucker & Winsor, 2013), and also because SDT provides a unique opportunity to assess the role of the satisfaction of psychological needs in URM students' educational persistence. Finally, SDT also allows for the development of impactful interventions (Ryan, Patrick, Deci, & Williams, 2008).

By examining the satisfaction of psychological needs in URM educational persistence, the current study builds on Tucker and Winsor's (2013) findings that the SDT continuum does not fully explain educational persistence in URM prehealth students. A significant finding that informs the current study is that some extrinsic motivation promotes educational persistence, yet little is understood about how extrinsic motivation influences persistence. The answer to this and additional questions are explored through qualitative methods.

Building on Tucker and Winsor's (2013) findings and using SDT, the current study addresses three distinct issues. First, SDT research literature continues to suggest that supportive academic and social experiences satisfy psychological needs, but to date, no research has explained how academic and social experiences satisfy URM prehealth students' three basic universal psychological needs as defined by Deci and Ryan (2000). Deci and Ryan (2002) utilize psychological needs to explain how individuals motivate themselves. Understanding the relationship of psychological needs and the satisfaction of these needs in academic and social experiences is key to understanding URM motivation and persistence. Second, despite numerous barriers, little is known about how URM students use universal psychological needs to persist in the face of challenge. There are reasons to believe that these psychological needs are important (Cokley, 2003; Deci & Ryan, 2002; Deci & Vansteenkiste, 2004; Graham, 1994; Tonks, 2006). Finally, the satisfaction of psychological needs is measured using numerous processes; the current study assesses whether previous research results confirm or complement the findings of the current study. By considering these three issues, the current study helps inform future

interventions that may be developed to retain URM prehealth students in the educational pipeline.

In summary, URM health students have difficulty achieving educational persistence (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999; Museus, Nichols, & Lambert, 2008; Nettles, Thoeny, & Gosman, 1986) as a result of demographic, social, and motivational barriers. The purpose of the current study is to provide a better understanding of how motivational variables, specifically the satisfaction of psychological needs as defined by Deci and Ryan (2000), impact URM health students' educational persistence. More specifically, the current study focuses on how psychological needs as defined by Deci and Ryan (2000) are satisfied and measured. Using current literature focusing on the impact of psychological needs on URM students' persistence, this study extends knowledge of how psychological needs are satisfied when URM students persist and how the qualitative measurement of psychological needs may compare to traditional measurement. Chapter 2 provides a review of literature acknowledging the variables influencing educational persistence and current understanding of how psychological needs drive persistence. The chapter concludes with a discussion of how psychological needs are perceived, satisfied, and measured, specifically, in URM students.

## **Chapter 2: Literature Review**

### **Educational Pipeline**

Historically, inequality, lack of access, inadequate academic preparation, and unequal representation have plagued URM students' ability to pursue professional degrees in health care. Despite increasing number of URM students in the U.S., URM students participate in professional health programs at a low rate. Numerous studies have explored the demographic, social, and motivational reasons students do not persist and are focused on improving these conditions. However, the results have not shown significant nor rapid outcomes. This chapter reviews the research on diminished educational persistence in URM students and proposes additional veins of research for exploration. A discussion of each topic is outlined, followed by a synthesis of how universal psychological needs (i.e., autonomy, competence, and relatedness), relate to educational persistence. By doing so, this study resists the pervasive narratives that reinforce stereotypes of minority students as incompetent and endangered in the health professions. Instead, the current study focuses on telling the stories of students who are successfully persisting in their desired health careers.

### **Diminished Educational Persistence for URM Students**

Numerous URM students are unable to persist successfully to degree completion at the rates of their White and Asian counterparts (Higher Education Research Institute, 2010; Huang, Taddese, & Walter, 2000; Russell & Atwater, 2005; Seymour, 1992; Sullivan, 2004). Declines in URM educational persistence, particularly in the sciences, can be seen across critical periods of students' learning experiences including middle school, high school, and college (Hinton et al., 2010; Seymour, 1992). In a study of



eighth-grade students who were interested in pursuing science and engineering careers, Mau (2003) found that one-fourth of the URM students who aspired to science and medical careers sustained their ambitions six years later. The Higher Education Research Institute (2010) confirmed similar racial discrepancies in persistence as 33% of White and 42% of Asian students persisted to science degrees while 18.4% of Black and 22.1% of Latino students persisted to science degrees within five years after entering college. Similarly, the Association of American Medical Colleges (2014) documented a stagnant or decreasing number of URM students matriculating successfully to medical schools over the last 10 years (Table 1). These numbers are of great concern for medical educators, since the diminished persistence of URM health students has significant social implications (Allen, 1992; Barr, Gonzalez, & Wanat, 2008; Eagan et al., 2013; Fincher, Sykes-Brown, & Allen-Noble, 2002; Grumbach & Chen, 2006; Hinton et al., 2010; Parrish, Daniels, Hester, & Colenda, 2008; Roman, 2004; Russell & Atwater, 2005).

Table 1

*Percentages of Matriculants by Race and Ethnicity*

	<b>2008</b>	<b>2010</b>	<b>2011</b>	<b>2013</b>	<b>2014</b>
American Indian or Alaska Native	0.90	0.89	0.70	.2	.2
Asian	21.72	22.37	22.48	18.51	18.76
Black or African American	6.97	7.01	6.94	6.15	6.03
Native Hawaiian or Other Pacific Islander	0.19	0.16	0.13	.14	.13
White	63.62	62.01	62.90	51.73	52.7
Other	6.60	7.55	6.85	2.6	2.57
<b><i>Matriculants</i></b>	100.00	100.00	100.00	100.00	100.00

Note. Adapted from Association of American Medical Colleges (2014). Copyright 2014 by Association of American Medical Colleges. Adapted with permission (Appendix A).

**Social Implications of Diminished Persistence**

In the United States, disparities in access to care occur and persist for underserved patients in large part due to a shortage of URM medical practitioners, an issue that is only exacerbated by diminished educational persistence of URM health students (Institute of Medicine, 2002). The lack of accessible healthcare services is particularly acute for the one in five Americans who are racial and ethnic minorities, uninsured, poor, Medicaid recipients, or English language learners (ELL) (Goode, Dunne, & Bronheim, 2006; Marrast, Zallman, Woolhandler, Bor, & McCormick, 2013). For example, Latinos are the fastest growing minority group in the United States, but they report the poorest access to quality healthcare (Derose & Baker, 2000; Duff, 2001; Flores et al., 2003; Gaines et al., 1997; Gandhi et al., 2000; Ingleby, Chiarenza, Deville, & Kotsioni, 2012; Jacobs,

Agger-Gupta, Chen, Piotrowski, & Hardt, 2003; Kubota, 1998; Livingston, Minushkin, & Cohn, 2008; Mayberry, Mili, & Ofili, 2000; P. Miller & Endo, 2004; Ortega et al., 2007; Ziol-Guest & Kalil, 2012). These individuals are less likely to have insurance or quality healthcare, including access to linguistically and culturally competent healthcare providers (Derosé & Baker, 2000; Flores et al., 2003; Gandhi et al., 2000; Jacobs et al., 2003; Ortega et al., 2007; Ziol-Guest & Kalil, 2012).

As the majority of the U.S. population is likely to consist of current minorities by 2050 and insurance coverage is expanding for the low and underinsured, a major concern is an inadequate supply of culturally competent medical professionals in the workforce (Castellanos & Jones, 2003; Derosé & Baker, 2000; Ingleby et al., 2012; Institute of Medicine, 2002; Riley, 2007; Roberts, 2009). This concern is exacerbated by the fact that while culturally competent medical professionals are few, those few culturally competent providers, often URMs, provide a disproportionate amount of care to the underserved (Marrast et al., 2013). Marrast et al. (2013) indicated that URM physicians care for 53% of minority patients and 70.4% of ELL patients. The phenomena of minority physicians being more likely to treat minority patients and, conversely, minority patients being more likely to seek care from minority physicians occurs because patients are attracted to those physicians who consider their customs, beliefs, and language in their treatment plan and vice versa (Castillo-Page, 2012; Goode et al., 2006; Hargraves, Stoddard, & Trude, 2001; Riley, 2007; Saha, Guiton, Wimmers, & Wilkerson, 2008; Street, O'Malley, Cooper, & Haidet, 2008; Ziol-Guest & Kalil, 2012). Consequently, to increase the number of minority physicians, educators must also increase the number of successful URM prehealth students. As a result of attracting and retaining URM students

into the prehealth pipeline, more URM physicians will join and contribute to a culturally competent workforce and provide healthcare to the underserved. An added benefit to the increase in URM prehealth students is that a diverse population of medical providers also enhances the quality of education of non-minority providers (Bowman et al., 2011; Gurin et al., 2002). Consequently, a solution to the lack of access to quality healthcare for minority and ELL patients is to encourage the diversification of the healthcare workforce so that it mirrors the U.S. population. Creating a diverse workforce begins with recruiting and helping to retain prospective URM students early in their academic careers.

### **Developing the Provider Pipeline**

To overcome the barriers of a lack of culturally competent healthcare providers, numerous efforts are being made, one of which is to increase the number of URM prehealth students who intend to become healthcare providers (Allen, 1992; Barr et al., 2008; Fincher et al., 2002; Grumbach & Chen, 2006). Aggressive and active recruiting of prehealth URM students into health careers requires professional schools to hire recruiters; develop summer pre-professional programs; and provide summer science camps to develop students' early interest in the health professions by improving students' academic and environmental experiences (Fincher et al., 2002; Grumbach & Chen, 2006). While these efforts are successful at primarily historically Black colleges and universities (HBCUs) and Hispanic Serving Institutions (HSI), these efforts are not resolving the shortage of URM prehealth students in the broader educational pipeline (Crisp, Nora, & Taggart, 2009).

Since current efforts are not having the desired outcome of resolving the shortage, the current study expands on previous research by applying an underutilized framework (i.e., motivation) to this problem. Research has explored primarily the demographic and social variables that affect URM students' educational persistence, while motivational frameworks have often been underutilized (Agrawal, Vlaicu, & Carrasquillo, 2005; Antony, 1996; Arbona & Novy, 1990; Barr & Matsui, 2007; Hollow, Patterson, Olsen, & Baldwin, 2006; Odom, Roberts, Johnson, & Cooper, 2007; Rao & Flores, 2007; Thurmond & Cregler, 1999). Research has shown that motivational theory is a good paradigm to explore URM educational persistence (Cokley, 2001, 2003; Graham, 1991, 1994, 1997; Griffin, 2006). The current study acknowledges the importance of demographic and social variables but focuses on how motivation, particularly the SDT framework, explains persistence (Deci, Koestner, & Ryan, 1999; Deci & Ryan, 2000; Ryan & Deci, 2000).

Previous research has demonstrated a relationship between educational persistence and motivation in all students (Odom et al., 2007; Radda, Iwamoto, & Patrick, 1998; Ryan & Deci, 2000; Strayhorn, 2013). Studies examining URM students' motivation have commonly used multiple frameworks including grit (Duckworth, Peterson, Matthews, & Kelly, 2007; Strayhorn, 2013), attribution theory (Graham, 1997; Griffin, 2006; van Laar, 2000; Weiner, 1986), locus of control (Graham, 1994; Rotter, 1953; Russell & Atwater, 2005), and SDT (Cokley, 2003; Graham, 1994; Hwang, Echols, & Vrongistinos, 2002). These studies have demonstrated that the higher the students' educational interest are, the more likely they are to persist. Likewise, when academic interest and motivation are low, educational persistence is challenged.

The connection between motivation and educational persistence is significant since an increase in URM educational persistence can increase the number of culturally competent providers who provide care to the underserved (Hargraves et al., 2001; Riley, 2007; Saha et al., 2008; Street et al., 2008). Before exploring the impact of motivation and psychological needs on persistence, the next section explores the current understanding of the demographic, social, and motivational variables influencing educational persistence.

### **Factors Inhibiting URM Educational Persistence**

Previous research explored various demographic, social, and motivational variables hindering the educational persistence of URM prehealth students (Agrawal et al., 2005; Antony, 1996; Arbona & Novy, 1990; Barr & Matsui, 2007; Hollow et al., 2006; Odom et al., 2007; Rao & Flores, 2007; Thurmond & Cregler, 1999). Demographic variables include race (Arbona & Novy, 1990; Chang, Eagan, Lin, & Hurtado, 2011), language (Kubota, 1998; Odom et al., 2007; Reyes, Kobus, & Gillock, 1999), and financial status (Rao & Flores, 2007; Thurmond & Cregler, 1999). Social variables include academic challenges (e.g., nonscience academic majors, low standardized test scores, low grade point averages) (Barr et al., 2008; Elliott, Strenta, Adair, Matier, & Scott, 1996; Hollow et al., 2006), and unsupportive environments (e.g., poor campus climate, advising, and family and peer support) (Fries-Britt, 1997; Grandy, 1998; Rao & Flores, 2007; Seymour & Hewitt, 1997; Thomas, Manusov, Wang, & Livingston, 2011). Motivational variables include negative perceptions of educational persistence (e.g., perceived racism and/or discrimination) (Frierson, 1988; Odom et al., 2007) and loss of interest (Antony, 1996, 1998; Cokley, 2003; Deci & Ryan, 2000;

Griffin, 2006; Thurmond & Cregler, 1999). However, demographic and social variables leave limited opportunity for educators to develop effective interventions as complex and dynamic variables are difficult to quantify (Flores et al., 2003; Institute of Medicine, 2002; Jacobs et al., 2003; Ortega et al., 2007). Future research on these factors is necessary to understand the direct effects of these variables on educational persistence. In an effort to suggest future interventions to improve educational persistence, rather than examine the more commonly explored demographic and social variables, this study extends current understanding to include the motivational frameworks (i.e., SDT) that have not been fully explored.

**Motivational Variables.** Motivation is an underutilized perspective, in terms of persistence of URM students. As noted by numerous researchers, non-cognitive variables such as motivational skills are essential to understanding student educational persistence, particularly in URM populations (Deci & Ryan, 2000, 2002; Deci & Vansteenkiste, 2004; Hayenga & Corpus, 2010; Hernandez, 2000; Levesque, Zuehlke, Stanek, & Ryan, 2004; Longerbeam, Sedlacek, & Alatorre, 2004; Vallerand, Fortier, & Guay, 1997). Unfortunately, systematic motivational research examining educational persistence of URM prehealth students is limited (Antony, 1996; Graham, 1997; Griffin, 2006; Hwang et al., 2002). The current study extends previous research on URM educational persistence by drawing from SDT as a framework and focuses on the impact of the psychological variables of autonomy, competence, and relatedness. Ultimately, understanding how URM health students' psychological needs are satisfied helps explain how URM students use motivation to achieve educational persistence.

## **Self-Determination Theory**

The current study explores how persistence is driven by psychological needs (Russell & Atwater, 2005; Ryan & Deci, 2000). While numerous motivational theories can be used, SDT currently gives the most convincing explanation of how the satisfaction of psychological needs explain persistence. SDT posits that, when three basic psychological needs (autonomy, competence, and relatedness) are satisfied, humans are more motivated, experience well-being, and persist (Ryan & Deci, 2000). To connect the role of these psychological needs with motivation, Ryan and Deci (2000) developed the SDT continuum, which describes levels of motivation from amotivated to intrinsic motivation. The next section explores SDT's basic psychological needs and their roles in educational persistence.

**Basic Psychological Needs in SDT.** The concept of basic needs originated with Murray (1938) and Hull (1943). Murray's exploration of needs determined that behavior was driven by disequilibrium. When one lacks something, one is driven to fill the absence. Murray developed a classification of needs in which primary needs were biologically based and secondary needs were psychological but not innate or essential to human well-being. Expanding Murray's concepts, Deci and Ryan (2002) clarified that psychological needs are necessary for growth and well-being, including concepts such as educational persistence.

SDT is the only modern motivational theory that examines the importance of psychological needs to explain behavior (Ryan & Deci, 2000). Needs within the SDT framework have the following qualities. First, psychological needs are innate and universal (i.e., all individuals have the need for autonomy, competence, and relatedness).



Second, psychological needs, when satisfied, lead to positive outcomes, while negative outcomes occur when needs are thwarted. Finally, psychological needs are foundational needs and are not derivatives of other constructs (Deci & Ryan, 2000; Deci & Vansteenkiste, 2004). These restrictive criteria for psychological needs in SDT have left three basic needs requiring further research: autonomy, competence, and relatedness. The ability to identify basic psychological needs allows researchers and practitioners to support URM students' needs for autonomy, competence, and relatedness. Not only can we support psychological needs, but we can also explain the behavior of educational persistence by identifying what a student is trying to attain, as well as why persistence is desired (e.g., for internal and autonomous reasons vs. external and less autonomous reasons).

**The Need for Autonomy.** Autonomy, a psychological need describing people as initiators of their own behavior (Deci & Ryan, 2002), is also described as volition and self-endorsement (de Charms, 2013; Heider, 2013). According to SDT, when students willingly engage in a behavior and endorse their actions, they are acting autonomously. The opposite of autonomy is heteronomy, in which behavior is controlled outside the self. A challenge to examining research on autonomy within the SDT framework is that the literature does not consistently define autonomy, as it is often confused with independence, individualism, and self-efficacy (Bandura, 1997; Chirkov, 2009; Chirkov & Ryan, 2001; Chirkov, Ryan, Kim, & Kaplan, 2003; Reeve, Jang, Carrell, Jeon, & Barch, 2004). This study uses the SDT definition of being the initiator or source of one's own behavior. Autonomous individuals act in accord with their authentic selves and engage in activity with commitment and interest. Autonomous motivation is associated

with increased performance, goal attainment, well-being, and persistence (Gagné & Forest, 2008; Sheldon & Elliot, 1998; Williams, Saizow, & Ryan, 1999). While persistence does not always predict positive outcomes, particularly in the face of failure, it does describe intent (Vansteenkiste, Lens, De Witte, De Witte, & Deci, 2004).

Autonomous students who persist to attain prehealth careers are most likely to find prehealth careers interesting and meaningful (Gagné, Senécal, & Koestner, 1997; Millette & Gagné, 2008). In an earlier study on URM persistence (Borow, 1968), premature foreclosure on autonomy was a reason for decreased persistence. However, autonomy alone does not fully explain persistence in any population (Deci, Eghrari, Patrick, & Leone, 1994; Deci & Ryan, 1985, 2002; Ryan & Deci, 2000).

**The Need for Competence.** Competence, the second psychological need affecting educational persistence and motivation, functions by providing feelings or perceptions of proficiency with respect to an activity (James, 1890). Whereas autonomy is necessary for intrinsic motivation, competence is necessary for any motivation (i.e., extrinsic or intrinsic) (Bandura, 1997; Deci & Ryan, 2000). Competence is theorized to be important both because it facilitates students' goal attainment (e.g., prehealth careers), and because it provides students with a sense of satisfaction from engaging in an activity at which they feel effective (Williams & Deci, 1996; Williams et al., 1999).

The earliest discussion of the need for competence was in James' (1890) examination of psychology as a scientific discipline. James' (1890) understanding of competence is focused on drives and instincts; however, the definition of competence has since become more complex. Competence in SDT is grounded on White's (1959) effectance motivation. The major assumption of effectance motivation (R. White, 1959)

is that people interact with and affect their environment in an attempt to master the environment and achieve pleasure. For example, for a college student, the act of reading books and taking tests may not be enjoyable, but mastery of the material may produce pleasurable outcomes such as high grades. A behavior resulting from the satisfaction of the need for competence is educational persistence (Jang, Reeve, Ryan, & Kim, 2009; Williams & Deci, 1996; Williams, Saizow, Ross, & Deci, 1997; Williams et al., 1999).

From White's (1959) definition of competence, Elliot, McGregor, and Thrash (2002) proposed a more general definition of competence in which individuals desire the ability to be capable. Elliot et al. described competence as having three components: task referential, past referential, and other referential. Task referential competence, associated with a particular activity, is supported by continuous feedback. Past referential competence focuses on improving current abilities and skills by learning from past actions. As defined by Elliot et al., other referential competence involves individuals' comparing their performance to that of others. These functions of competence have been closely associated with goal orientations. Task and past referential components of competence are associated with mastery performance and other referential with performance goal orientations (Elliot et al., 2002). This more recent expansion of competence uses the achievement goal orientation framework to explain educational persistence and may be helpful to explain competence in URM students.

It is also noteworthy that the impact of competence is enhanced in the presence of autonomy (Black & Deci, 2000; Levesque et al., 2004). Jang et al. (2009) identified autonomy and competence as more significant than competence alone for developing intrinsic motivation. In turn, autonomy and competence have a stronger impact on

intrinsic motivation and educational persistence when in the presence of the third psychological need, relatedness.

**The Need for Relatedness.** The third psychological need uniquely impacting URM prehealth students' educational persistence and motivation is relatedness (Arbona & Novy, 1990; Eagan et al., 2013; Hurtado & Carter, 1997; Kerka, 1998; Landry, 2003). Relatedness or belongingness is the drive to form and maintain lasting, positive, and significant interpersonal relationships (Baumeister & Leary, 1995). Relatedness is grounded in the work of Freud (2005), Maslow (1968), and Bowlby (1982). Freud (2005) discussed the need for interpersonal contact, while Maslow (1968) described in his hierarchy of needs a need for love and belonging. Subsequently, Bowlby (1982) established the need to form and maintain relationship as part of attachment theory. Baumeister and Leary (1995) conducted a significant review of literature on the need to belong and found significant empirical literature to suggest that all students need frequent, positive, stable interactions with others. This support can occur through communication about self, shared activities, having a group of friends, feeling understood, participating in enjoyable activities, avoiding conflict that distances others, and avoiding insecure feelings (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Many studies exploring relatedness have examined the relationships between children and their caregivers and have explored attachment theory (Baumeister & Leary, 1995; Bowlby, 1982; Kerka, 1998; Landry, 2003; Rothbaum, Weisz, Pott, Miyake, & Morelli, 2001). Throughout these studies, pleasant and caring relationships that assist in driving motivation and persistence were assumed and affirmed.

Research to date on the wider population suggests that relatedness alone has a less powerful impact on educational persistence and intrinsic motivation than other psychological needs, but, in combination with autonomy and competence, relatedness plays a significant role in maintaining intrinsic motivation (Deci et al., 1999; Niemiec, Ryan, Deci, & Williams, 2009; Ryan & Deci, 2000). In particular, URM students' relatedness plays a more significant role in persistence (Hurtado & Carter, 1997; Jang et al., 2009; Maestas, Vaquera, & Zehr, 2007). When the need for relatedness is satisfied, URM students are more likely to achieve and maintain intrinsic motivation (Strayhorn, 2013). Maintaining and achieving intrinsic motivation due to relatedness is developed when URM students experience warmth, care, and respect from family, friends, and advisors. Assessing how relatedness supports persistence through the development of intrinsic motivation helps to expand current understanding. But first, it is important to acknowledge ethnic/racial differences in the way in which autonomy, competence, and relatedness are perceived and satisfied.

### **Universality and URM Populations**

Basic needs within the SDT framework are universal (Deci & Ryan, 2000; Deci & Vansteenkiste, 2004; Ryan & Deci, 2000). This means that all people (across gender, age, and culture) act to fulfill the needs of autonomy, competence, and relatedness to achieve growth and persistence (Chirkov, 2009; Jang et al., 2009; Sheldon, Abad, & Omoile, 2009; Shih, 2008). While the fulfillment of basic psychological needs is universal, the way in which these needs are perceived, satisfied, and measured varies across cultures (Baumeister & Leary, 1995; Deci & Ryan, 2002; Ryan & Deci, 2000). SDT theorists make allowances for cross-cultural variation in autonomy, competence,

and relatedness. This section explores the universal psychological needs and the diverse ways in which those needs are perceived, satisfied, and measured (Chirkov et al., 2003; Tonks, 2006). By understanding the unique ways in which URM students may uniquely perceive and satisfy their basic psychological needs, the current study addresses the specific ways in which psychological needs influence URM students' educational persistence.

### **Autonomy as Universal**

While some of the research posits that autonomy is universal (Bandura, 1997; Chirkov, 2009; Chirkov & Ryan, 2001; Deci & Ryan, 2002; Ryan & Deci, 2000), researchers have historically debated this notion (Chirkov et al., 2003; Iyengar & Lepper, 1999; Markus & Kitayama, 1991; J. Miller, 1999; Oishi, 2000). The issue in these debates is that autonomy is not consistently defined. Markus and Kitayama (1991) wrote that autonomy is a necessary precursor to well-being and persistence in some cultures, predominately Western cultures. In response, Tonks (2006) noted that autonomy was incorrectly defined as independence and also that autonomy can be expressed and satisfied differently when comparing and contrasting Eastern and Western cultures but can still be a universal need. These conclusions highlight the notion that while autonomy is a psychological need, it may be expressed, satisfied, and measured differently by non-URM versus URM students, and this fact has not yet been explored (Cokley, 2014).

### **Competence as Universal**

There has been little debate about the universal nature of competence as a psychological need (Tonks, 2006). Researchers earlier confirmed that competence is universal across cultures (Levesque et al., 2004; Sheldon, Elliot, Kim, & Kasser, 2001).

R. White (1959), the father of competence theory, did not discuss individual differences in competence, but he did discuss differences in how environment and constitution can facilitate or impede competence. Research suggests that, while the way in which the need for competence is supported, satisfied, and expressed may differ across cultures, it is universal (Levesque et al., 2004; Sheldon et al., 2001; Tonks, 2006).

### **Relatedness as Universal**

Little work has been done in the area of relatedness and its universality, but to date, no evidence has discounted the universality of relatedness (Baumeister & Leary, 1995; Levesque et al., 2004). Some arguments have been made that while all psychological needs are important, the importance of relatedness may differ across cultures (Tonks, 2006). Sheldon et al. (2001) noted that relatedness, while a universal need, may be a more important psychological need in South Koreans than in White Americans. These specific findings have significant implications for URM health students, as URM students and non-Western populations have similar collectivist values and harmonious group relationships (Fuligni, Tseng, & Lam, 1999; Gaines et al., 1997; Harrison, Wilson, Pine, Chan, & Buriel, 1990; Phinney, Kim-Jo, Osorio, & Vilhjálmsdóttir, 2005; Phinney, Ong, & Madden, 2000; Triandis & Gelfand, 1998). Having reviewed the universality of psychological needs as defined by Deci & Ryan (2002), this study now moves from SDT mini-theory of basic needs to SDT's organismic integration theory, also referred to as the self-determination continuum.

### **Self-Determination Continuum**

Ryan and Deci (2000) developed the SDT continuum to illustrate an individual's perceived self-determination. The SDT continuum consists of three main categories:

amotivation, extrinsic motivation, and intrinsic motivation (Figure 1) (Ryan & Deci, 2000). Amotivation is the lack of intent and/or competence. For example, a student may lack the desire to attend class or to complete coursework. This category within the continuum is strongly associated with failed educational persistence (Deci & Ryan, 1985, 2000, 2002; Ryan & Deci, 2000; Williams et al., 1999).

The second category, extrinsic motivation, is driven by external influences. It is present when social or external influences affect one's impetus for action. Unlike Rotter's (1953) definition of extrinsic motivation as being driven by factors outside oneself, Deci and Ryan's (1985) definition of extrinsic motivation involves an individual being or feeling controlled by negative outcomes whether individuals are controlled by others or themselves. "The issue is not so much whether the source of control is oneself or another, but whether or not one is being controlled" (Deci & Ryan, 1985, p. 106). The extrinsic category is associated with some educational persistence, but not optimal outcomes (Deci & Ryan, 2002; Ryan & Deci, 2000).

Extrinsic motivation, within the framework of SDT, is viewed as having four subcategories: external regulation, introjection, identification, and integration (Ryan & Deci, 2000) (Figure 1). The trajectory of these subcategories gradually transitions from highly extrinsic motivators to more intrinsic motivating components. External regulation is a fairly controlled form of reinforcements and punishments central to operant conditioning (Skinner, 1953). Introjected regulation occurs when individuals avoid guilt or anxiety to achieve approval from others. Identified regulation arises when an individual's motivation is associated with the value of the activity; this is the beginning of embedded low levels of intrinsically motivating forces. For example, students



demonstrate identification when they attend tutor sessions outside of class by realizing that the sessions will help them achieve long-term goals. Integration is the most self-regulating type of extrinsic motivation and occurs when individuals recognize a rationale for their actions and accommodate and assimilate to that rationale. To achieve intrinsic motivation, an individual often advances through the four types of extrinsic motivation (Ryan & Deci, 2000).

Intrinsic or instrumental motivation, the third category in the SDT continuum, occurs when students participate in an activity for their own enjoyment and interest (Ryan & Deci, 2000; Wrzesniewski et al., 2014). Students who demonstrate intrinsic motivation are free from being controlled and participate in activities out of personal satisfaction. For example, intrinsically motivated prehealth students choose to take an upper-level seminar course in applied biostatistics because they enjoy the material rather than out of necessity. Intrinsic motivation is strongly associated with student educational persistence (Deci & Ryan, 1985, 2002).

Behaviour	non self-determined		self-determined			
Locus of Motivation	None	Not-internalised		Internalised		
Type of Motivation	<b>Amotivation</b>	<b>Extrinsic Motivation</b>				<b>Intrinsic Motivation</b>
Type of Regulation	Non-regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation

*Figure 1.* The phases and regulatory phase of Self-Determination Theory. Reprinted from Deci and Ryan (2000), p. 237. Copyright 2000 by Taylor and Francis. Reprinted with permission (Appendix A).

## **Cross-cultural Understanding of Psychological Needs**

Since few studies (Cokley, 2001, 2003; Griffin, 2006; Hwang et al., 2002; Tucker & Winsor, 2013) have used SDT to examine URM student persistence, the current study uses SDT research conducted with participants from non-Western collectivist cultures who share commonalities with the URM population (Fuligni et al., 1999; Gaines et al., 1997; Harrison et al., 1990; Phinney et al., 2005; Triandis & Gelfand, 1998). Collectivist cultures highlight the importance of the group over the goals and interest of the individual (Triandis, 1995). While European Americans are associated with individualism, many URM Americans (e.g., Vietnamese, Mexican, and African Americans) share the collective values and harmonious group relationships of their non-Western counterparts (Fuligni et al., 1999; Gaines et al., 1997; Harrison et al., 1990; Phinney et al., 2005; Triandis & Gelfand, 1998). For example, as demonstrated in Hamilton, Blumenfeld, Akoh, and Miura (1989), Japanese students responded to the question, “Why do you feel good if you do well on a test?” with “Because my parents will be proud” (pp. 564-565). While parents are an external source of pride, it is also congruent with students’ feelings about themselves and demonstrates students’ desires for continued relationships with parents. This example highlights how the psychological need for relatedness plays a significant role in the development of internalization in collectivist cultures and contradicts the previously dominant assumption that autonomy and competence primarily drive the internalization process (Deci & Ryan, 2002; Ryan & Deci, 2000; Tonks, 2006; Tsai, Kunter, Lüdtke, Trautwein, & Ryan, 2008). While studies examining this assumption are few, these unique and significant differences across cultures in the way in

which psychological needs are used provide this study with questions about how URM students' psychological needs may impact persistence.

Not only do the perceptions of psychological needs differ across cultures, but the ways these needs are satisfied also differ (Jang et al., 2009; Tonks, 2006; Tsai et al., 2008). In Westernized societies, educational relatedness needs may be satisfied primarily in traditional student-to-teacher advisement or relationships. However, in non-Western societies, education relatedness needs are not satisfied solely in the academic environment but also as a result of other factors including family input (e.g., children want to make their parents proud by performing well in school). Jang et al. (2009) found that Korean students enjoyed relatedness but were not disturbed by its absence. These studies show that relatedness has a unique and important role in the perceptions and satisfaction of psychological needs. The current study explores whether or not the perception and satisfaction of psychological needs of non-Western cultures parallels the perception and satisfaction of prehealth URM students.

### **Supporting URM Students' Psychological Needs Through External Autonomy Support**

Based on previous motivational research on URM persistence, once the process of persistence is understood in some detail (Erwin, Henry-Tillman, & Thomas, 2002; Fincher et al., 2002; Grumbach & Chen, 2006; Russell & Atwater, 2005), interventions can be developed to address persistence outcomes at the appropriate time and place. To date, when working with URM students, the most common interventions focus on increasing and promoting external autonomy support. External autonomy support is composed of four elements: perspective taking, provision of rationale, choice, and

acknowledgment of emotions to minimize pressure and demands (Deci et al., 1994; Koestner, Ryan, Bernieri, & Holt, 1984). External autonomy support occurs when students are encouraged to, rather than pressured into, behaving (Williams & Deci, 1996). Research in education demonstrates that external autonomy support, from academic advisors and parents, has independent effects on autonomy, competence, and relatedness (Vallerand et al., 1997; Vierling, Standage, & Treasure, 2007).

External autonomy support promotes internalization (Deci et al., 1994; Downie et al., 2007; Joussemet, Landry, & Koestner, 2008), which refers to a student's natural tendency to incorporate values to the self. Development of internalization leads to greater autonomy and intrinsic motivation, particularly when activities are not inherently interesting or enjoyable (Sheldon et al., 2009; Shih, 2008). Jointly, autonomy, competence, and relatedness have the most impact on educational persistence; however, each factor individually has positive outcomes on educational persistence (Ryan & Deci, 2000). To promote these psychological needs, the current study will explore how these needs are perceived and satisfied and will measure them appropriately.

### **Purpose of the Study and Research Questions**

Previous research (Tucker & Winsor, 2013) has suggested that social factors, such as family, community, faculty, and peers, play a unique role in URM educational persistence, an idea that is not fully explained in current understandings of SDT. The purpose of the current study was to examine URM prehealth students' educational persistence by using SDT and the psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 1985, 2000, 2002; Deci & Vansteenkiste, 2004). By doing so, this study contributes to efforts to increase the number of URM healthcare providers,

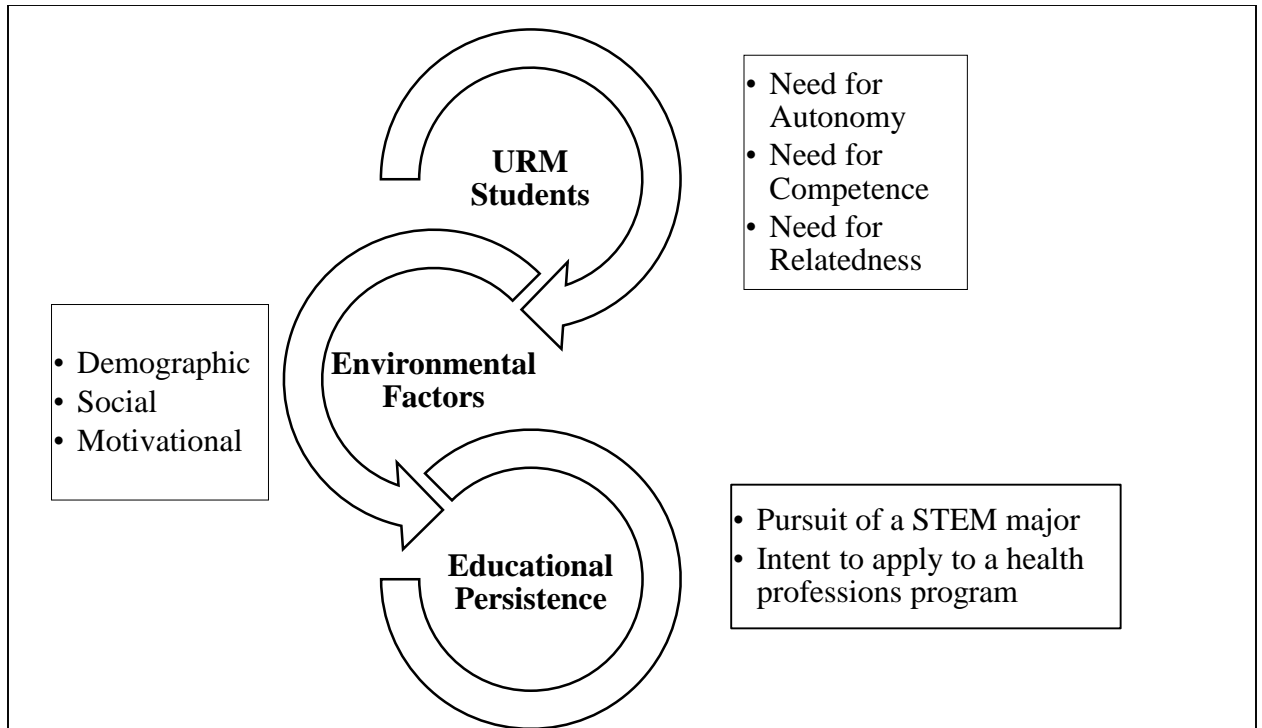
which not only affects the patients served but also improves the cultural competence of all healthcare providers (Derose & Baker, 2000; Flores et al., 2003; Ingleby et al., 2012; Jacobs et al., 2003; Livingston et al., 2008; Ortega et al., 2007; Saha et al., 2008). This study examined the perception, satisfaction, and measurement of these psychological needs to determine more appropriate and effective interventions that can systematically affect educational persistence (Figure 2) (Antony, 1996, 1998; Eagan et al., 2013; Fincher et al., 2002). The current study explored how satisfaction of these basic needs leads to greater educational persistence in URM students. Therefore, the primary research questions for this study were:

**Research question 1.** What psychological needs are satisfied when URM students participate in supportive academic and social experiences?

**Research question 2.** How does need satisfaction support URM students' abilities to persist in the face of challenge?

**Research question 3.** Are URM students' perceptions and satisfaction of psychological needs accurately assessed?

- a) To what extent are the results of previous research and the current study's in-depth interviews (i.e., memory and photo-elicited) confirmatory or contradictory?



*Figure 2.* The interaction of URM students' psychological needs, environmental influences, and educational persistence. URM students' needs for autonomy, competence, and relatedness can be satisfied by numerous environmental factors, which will drive or hinder educational persistence.

### **Chapter 3: Methodology**

The current qualitative study served two purposes, each using a different qualitative approach (i.e., narrative inquiry and constructivist grounded theory meta-analysis). The first purpose examined the stories and life experiences of URM students' educational persistence by using narrative inquiry. Second, based on research by Tucker and Winsor (2013), the study explored how psychological needs can be applied to SDT in explaining educational persistence by using a constructivist grounded meta-analytic approach. Tucker and Winsor (2013) identified that while SDT is a helpful framework to understand URM prehealth students' motivation, it fails to fully explain how extrinsic factors influence URM students' motivation and ultimate educational persistence. Some research has explained that this gap in literature is found in the perception and satisfaction of psychological needs (Deci & Vansteenkiste, 2004). The current research aimed to address this gap in literature by examining the role of psychological needs in URM students' educational persistence by using two separate yet corresponding methodologies.

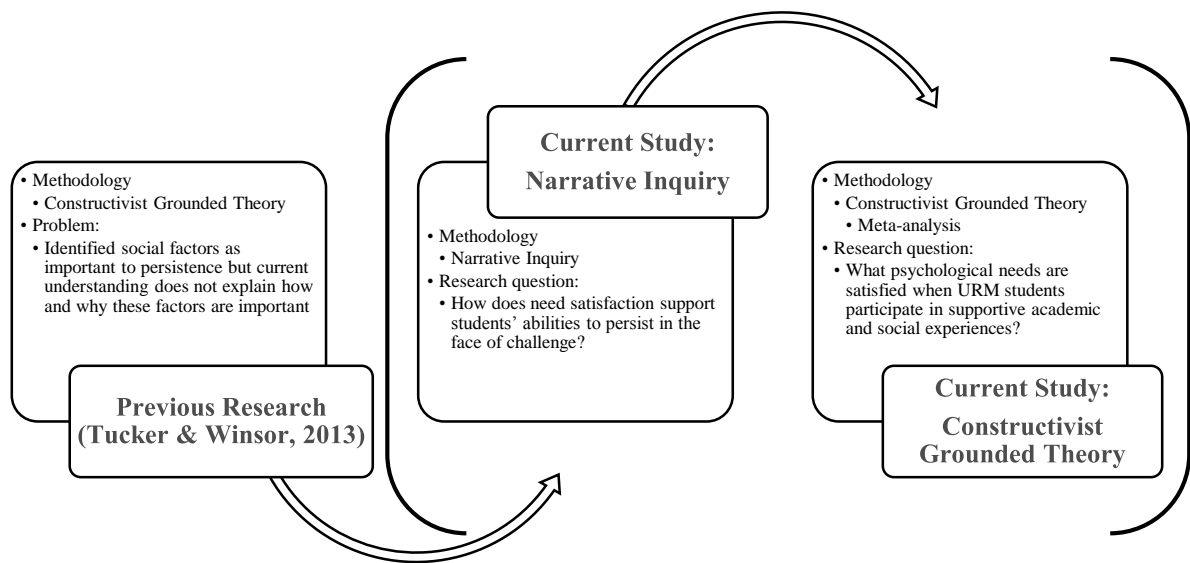
#### **Methodology**

The current study investigated what and how psychological needs are satisfied in URM prehealth students. To fully achieve the study's purposes and provide a more complex understanding of the perceptions, satisfaction, and measurement of psychological needs, the current study used two distinct methodologies with complementary constructionist epistemologies: narrative inquiry and constructivist grounded theory meta-analysis (Bauer & McAdams, 2000; Dawes & Larson, 2011; Farrelly, 2013; Glassett, 2012, April; Nordmo & Samara, 2009; Phinney et al., 2005;

Smith, 2010; Tonks, 2006). Narrative inquiry is an approach to understanding the told and lived stories of human experience as a source of understanding (Clandinin, 2006, 2013). As a method, narrative inquiry was the best approach to address the first purpose of the current study: to understand the stories and life experiences of URM students' educational persistence. The second approach, constructivist grounded theory meta-analysis, is a systematic method of collecting and analyzing data to construct and/or modify theory (Charmaz, 1999, 2006). An assumption of constructivist grounded theory is that the process of constructing theory involves the researcher's interactions with people, perspectives, and research procedures (Charmaz, 2006). The use of constructivist grounded theory meta-analysis was the most appropriate approach to address the second purpose of the current study as it offered an interpretive portrayal of how the perceptions and satisfaction of psychological needs can be explained using SDT. As depicted in Figure 3, the researcher first used a narrative inquiry approach to understand URM prehealth students' experiences by listening to and observing participants' life experiences. Second, the researcher applied a constructivist grounded meta-analytic approach to compare the current study's findings with previous research findings.

Using narrative inquiry expanded understanding of prehealth students' educational persistence (i.e., how experiences are shaped, expressed, and enacted), while constructivist grounded theory meta-analysis provided richer data to develop more complex theoretical explanations of URM educational persistence (i.e., how SDT explains or does not fully explain URM prehealth students' perception and satisfaction of psychological needs). In the current study, narrative inquiry is a form of social action, selected to illustrate the life experiences of URM students as they pursue health careers,





*Figure 3.* Illustration of how previous research informs the use of complementary methodologies to answer the study’s research questions.

*Note.* The third research question is not included in this figure as it is covered in the meta-analysis.

whereas constructivist grounded theory meta-analysis is a nontraditional, post-positivist perspective to develop and expand on current theory (Clandinin, 2006; Lal & Suto, 2012). Where narrative inquiry is often critiqued for researcher bias due to its subjective, interpretive nature, it is complemented by constructivist grounded theory meta-analysis, which traditionally has post-positivist findings that are more objective and deductive (Bell, 2010; Charmaz, 2006; Dawes & Larson, 2011; Denzin & Lincoln, 2012; Drew, 2005; Lal & Suto, 2012; Wacquant, 2003). In the current study, the use of a constructivist ground theory meta-analytic approach allowed for a theoretical connection between the narrative inquiry stories and SDT.

The choice of a constructivist meta-analytic approach, as opposed to the traditional post-positivist perspective in grounded theory, was based on the ability to use previous research to inform the current research process (Figure 3). The current study evaluated and synthesized case study research (Tucker & Winsor, 2013) by coding previous findings and developing those themes into emerging theory. These methodological approaches, discussed in greater detail later in this chapter, provided a unique way to overcome the limitation of individual case studies, which often lack generalizability (Stall-Meadows & Hyle, 2010). Combining narrative inquiry and constructivist grounded theory meta-analysis proved to be theoretically commensurable in terms of providing a richer understanding of how psychological needs are perceived, satisfied, and measured, while making the findings transferrable and more generalizable to diverse audiences (Lal & Suto, 2012).

### **Research Location**

The data for this study was collected at The Medical Institute (TMI) (pseudonym), a state university offering undergraduate, graduate, and professional degrees in nursing, allied health, graduate health, medicine, dentistry, and pharmacy. Pseudonyms were used in place of all proper names and places to provide confidentiality to participants. TMI's student demographics mirrored those of TMI's community service population: 63% Black, 29% White, and 6% Latino (The Urban Child Institute, 2013). To maintain racial and ethnic heterogeneity, TMI has developed strategic programs and initiatives to recruit, matriculate, and graduate a diverse student body (Health Career Programs, 2012). These efforts included successfully acquiring federally and state-funded programs focused on the success of URM students in the health careers, allowing numerous opportunities for advising, improved campus climate through mentoring, and

increased faculty tutorial support during times of academic challenge. In addition, TMI's Office of Health Career Persistence (HCP) was committed to recruiting and matriculating URM students who are interested in prehealth careers. The HCP office has existed for more than 35 years and has assisted in promoting the academic achievement of hundreds of URM prehealth students through academic and summer programming (Health Career Programs, 2012). HCP offered numerous summer opportunities to underrepresented undergraduate residents of the southern region of the United States who wished to pursue careers in medicine, dentistry, or pharmacy. Within one of HCP's summer enrichment programs, Good to Great, the current study investigated how URM prehealth students succeed in matriculation persistence.

### **Participants**

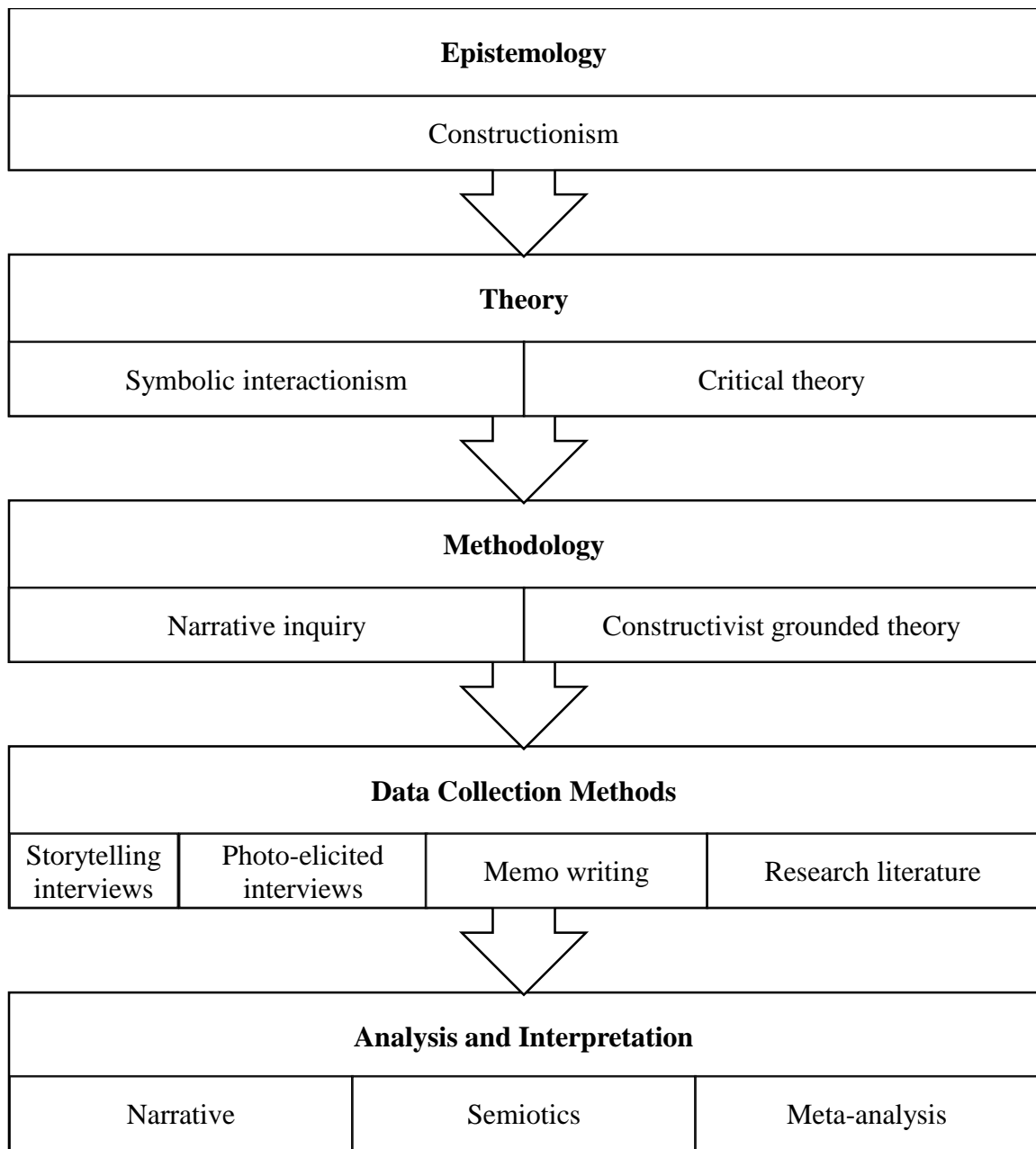
The participants were students enrolled in Good to Great, a pre-professional summer enrichment program, and were recruited via e-mail, telephone, and classroom announcement (Tucker & Winsor, 2013). The five participants for this study were selected based on the following criteria: (a) completion of organic chemistry and physics; (b) intention to apply to medical, dental, or pharmacy school in the next application year; and (c) self-identification as an URM health student (Table 2) (Tucker & Winsor, 2013). These criteria were guided by the definition of educational persistence in URM health students as the continual pursuit of a STEM major leading to the granting of a degree, as well as a student's sustained intent to apply to a health professional school. In doing so, the current study built on previous findings (Tucker & Winsor, 2013) and explored the specific role that satisfaction of psychological needs plays in the persistence of URM students.

Table 2

*Demographic Information of Study Participants*

Participant Name	Age	Gender	Professional Interest	School Classification	Ethnicity	Parental Education
David	25	M	Medicine	Undergraduate	African American	Mom-College Dad-HS
Shelbra	28	F	Medicine	Graduated	African American	Mom-College Dad-College
Khadijah	20	F	Medicine	Undergraduate	Palestinian/Arab	Mom-College Dad-College
Keisha	26	F	Dentistry	Graduated	African American	Mom-College Dad-College
Alejandra	22	F	Dentistry	Undergraduate	Venezuelan	Mom-College Dad-College

Participants in the current study were selected based on accessibility and their ability to contribute complex and powerful stories related to their educational persistence (Bell, 2010; Stake, 2006). At the conclusion of the participant selection process, students participated in two in-depth narrative interviews (i.e., storytelling and photo-elicited) to stimulate a complete analysis of the relationship between psychological need gratification and educational persistence of URM prehealth students. Through the intentional and purposeful selection of participants, the current study addressed the research questions with consistent use of epistemology, methodology, data collection methods, and analysis (Figure 4).



*Figure 4.* Qualitative Approach. The graphic identifies the major components of this qualitative research including epistemology, theory, methodology, methods, and analysis that will be used in the current study.

**Researcher's subjectivity and reflexivity.** Throughout the research process and design, the researcher exposed and made transparent her subjectivity and reflexivity. In line with constructivist grounded theory (Charmaz, 2006), and unlike traditional grounded theory (Strauss & Corbin, 1990), the researcher's subjectivity entered the research questions, theoretical framework, methodology, data collection method, analysis, interpretation, and development of findings (Figure 4). Creswell (2014) suggested that awareness of researcher bias provides a platform that eliminates identifying a certain truth, but knowledge is constructed through the researcher's interpretations. Subjectivity recognizes that there is no truth but, rather, assumes that understanding is constructed through a process of building on the researcher's interpretations. The researcher identified and illuminated unique perspectives by revealing her subjectivities, including her own race, gender, age, education, and professional experience (Guba, 1990). This section explores researcher subjectivities and how they influence this study.

The researcher is an African American woman in her 30s. Her educational and professional work experiences as well as discourses include supporting prehealth and health professional students' academic and career goals. Her educational persistence is driven primarily by autonomy and competence, but during times of challenge, her need for relatedness seems to be vital to meeting her needs for autonomy and competence. These professional and personal experiences both expand and limit her understanding of how the perceptions and satisfaction of psychological needs influence the educational persistence of URM students. Personal subjectivities drive the way in which the researcher explored the current study's research documents, narrative histories, personal

memos, and interviews of the study participants. In addition, documenting and tracking subjectivities and biases can be useful and complementary in the narrative inquiry analysis to maintain the emphasis on the participant stories. Although the exploration of her subjectivities produces no objective (scientific) truth, through reflexivity and subjectivity, this study promoted a clearer understanding and discussion about how psychological needs shape the educational persistence process of URM prehealth students. By taking these steps to establish transparent subjectivity and reflexivity, the current study may demonstrate to educators and researchers the worth of the findings of the current study in new settings or with unique populations, such as URM prehealth students.

### **Instrumentation**

Depth of understanding about URM prehealth educational persistence requires a diverse set of data; the current study used three types of instrumentation: memo writing, photography, and in-depth interviews (i.e., storytelling and photo-elicited) to highlight the in-depth narratives and images that motivate students to persist. The aim of these data collection methods was to expand upon our existing knowledge about URM prehealth students' educational persistence and to understand how to support the availability of culturally competent healthcare service providers. The next section examines URM student persistence by implementing three types of measurement: (a) memo writing, (b) photography as documentation, and (c) individual interviews.

**Memo writing.** Throughout the research process, memo writing was used to capture researcher subjectivities, as well as to engage in early analysis of data and codes (Charmaz, 2006). By recording reflective notes, memos allowed the researcher to record

hypotheses and add to the study's trustworthiness (i.e., credibility, transferability, dependability, and confirmability) (Denzin & Lincoln, 2012; Eisner & Peshkin, 1990; Guba, 1990; Krefting, 1999; Padgett, 1998; Patton, 2002). From these comparisons, the researcher was able to develop meaningful themes. By using memos and strategic coding, the researcher contributed to the coherence and significance of the findings (Charmaz, 2006).

**Photography as documentation.** As with memo writing, the collection of documents (e.g., participant photography) shaped the current study's findings. Photography was the primary document collected in the current study to provide material for conversation in the photo-elicited in-depth interviews. In addition, photography assisted the interviewer in shaping research questions, as well being an additional source of data for memo writing.

Photography, in the current study, helped study participants to describe feelings, information, and memories that are represented in images (Harper, 2002). Students' still photography, as a method of data collection, allowed both the researcher and participant to observe the same image with different or similar interpretations (Rose, 2011). The use of various documents, such as photography, provided a foundation for collecting rich narrative data to explore students' perceived psychological needs and perceived gratification during URM students' educational persistence.

**Individual interviews.** To address this study's research questions, the current research expanded on Tucker and Winsor's (2013) findings by using two distinct interviewing methods, storytelling and photo-elicited in-depth interviews, to explore educational persistence in URM prehealth students. Storytelling interviews were used to



reliably elicit memories without generating inaccurate accounts of students' experiences (Jobe, Tourangeau, & Smith, 1993). Photo-elicited interviews were used to evoke information, feelings, and memories captured in photography's symbolic representation (Clark-Ibáñez, 2004; Epstein, Stevens, McKeever, & Baruchel, 2008; Harper, 2002).

***Storytelling interviews.*** In the first method of individual interviewing, storytelling interviews, the interviewer used memory exercises to help students reflect on their educational persistence (Jabine, Straf, Tanur, & Tourangeau, 1984; Jobe et al., 1993; Memon & Bull, 1991). These cognitive interviewing exercises explored memories in 5- to 10-year increments and how each memory may impact educational persistence (Table 3). Using various interview methods, including both story- and photo-elicited interviews, provided a foundation for the collection of rich narrative data to explore students' perceived psychological needs and perceived gratification during URM students' educational persistence.

Table 3

*Example of Storytelling Questions*

<b>Storytelling Interview Questions</b>	
<b>Family</b>	<ul style="list-style-type: none"> <li>• When you were (age...5-year increments), what were the careers you remember talking with your family about? Did you initiate the conversation or did they?</li> <li>• Has anyone in your family ever frowned/rallied upon a desired career of yours? Did you change your aspiration as a result? Tell me about a time when your career aspirations changed. Who or what had an effect on that change? In what way? Did it motivate you to work harder for it?</li> <li>• How do your family members feel about the career choices you've made?</li> </ul>
<b>Race/Ethnicity</b>	<ul style="list-style-type: none"> <li>• Tell me a story from college in which race/ethnicity/nationality may have affected your prehealth experience</li> <li>• Tell me a story from high school about how your race/ethnicity/nationality may have affected your prehealth experience</li> <li>• Tell me a story from grade school in which race/ethnicity/nationality may have affected your prehealth experience</li> </ul>

***Photo-elicited interviews.*** The researcher used photo-elicited interviews to explore what keeps participants motivated to pursue health careers and what their motivation looks like (Clark-Ibáñez, 2004; Epstein et al., 2008; Harper, 2002; Rose, 2011). Students brought a photo(s) of what keeps them motivated to persist during times of challenge. These photo-elicited interviews explored the participants' observations, reflections, and interpretations of photography that represents educational persistence. These photo-elicited interviews included a description of both the photo and its impact on student motivation, as well as aspects of the photo's production, imagery, and audience (Rose, 2011) (Table 4). By including these descriptive aspects of the interview process,

the researcher was able to richly illustrate the satisfaction and qualitative measurement of psychological needs.

Table 4

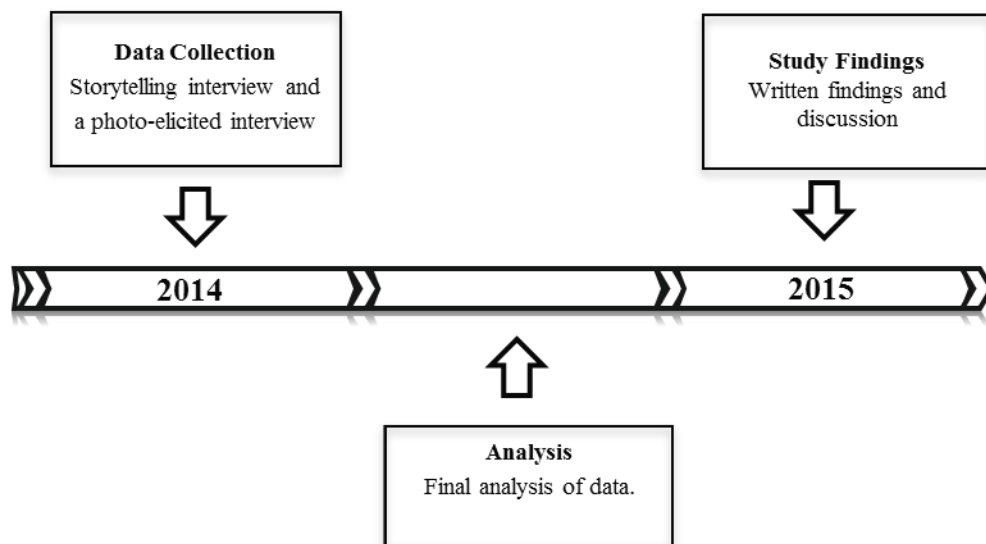
*Example of Photo-Elicitation Questions*

<p style="text-align: center;"><b>Production</b></p> <ul style="list-style-type: none"> <li>• Describe the photo</li> <li>• How did it motivate you or how did it decrease your motivation?</li> <li>• What is your most salient memory of this item?</li> <li>• Are there times this thing or person didn't behave as you thought it should? If so, how did you work around this?</li> <li>• If you could, what would you change about this thing or person? What would you keep the same?</li> <li>• How do you see yourself relating to this picture?</li> </ul>
<p style="text-align: center;"><b>Imagery</b></p> <ul style="list-style-type: none"> <li>• What is being shown?</li> <li>• What are the components of the image?</li> <li>• How are the arranged?</li> <li>• Is it one of a series?</li> <li>• Where is the viewer's eye drawn to in the image and why?</li> </ul>
<p style="text-align: center;"><b>Audience</b></p> <ul style="list-style-type: none"> <li>• Is more than one interpretation of the image possible?</li> <li>• How do different audiences interpret this image?</li> <li>• How are these audiences different from each other in terms of class, gender, race, sexuality, and so on?</li> <li>• How do these axes of social identity structure different interpretations?</li> </ul>

Adapted from *Visual Methodologies* (pp. 188-190) by G. Rose, 2001, London: SAGE Publications. Copyright 2001 by SAGE Publications. Adapted with permission (Appendix A).

## Procedures

The current study included numerous procedures to collect and analyze data and develop study findings (Figure 5). As discussed earlier, memo writing was used throughout the process of design, instrumentation, and data collection. This section explored the data collection process in more detail.



*Figure 5.* Illustration of the study procedures timeline.

As previously discussed, the research was collected at TMI's Health Career Persistence office. Initially, the researcher met with each student individually to explain the purpose of the study, answer questions, and obtain informed consent (Appendix C). Upon consent, the researcher immediately conducted two in-depth narrative follow-up interviews with each of the participants (Tucker & Winsor, 2013). The storytelling interviews were conducted first, and the photo-elicited interviews were conducted no

later than 48 hrs. after the first in-depth interview begins. Immediately following each interview and throughout the analysis, the researcher engaged in reflective memo writing to capture her subjectivities and additional interpretations. All interviews were recorded, transcribed, and uploaded into ATLAS-Ti. 7 (a qualitative analysis tool bench) for data analysis. From the consistent use of these procedures, a reliable and rich source of data was available from which to discover and analyze emerging themes that will elucidate how psychological needs impact URM prehealth students' educational persistence.

### **Data Analysis**

The researcher continued to revisit and assess the current study's multiple, rich data sources until it became clear that all emergent themes have been exhausted and identified. Through the use of systematic analysis of data, the current study provided depth of understanding about how the satisfaction of psychological needs impacts the educational persistence of URM prehealth students. This section explores the three methods of data analysis that were used in this study: narrative analysis, Rose (2011) process of semiotics, and constructivist grounded theory meta-analysis (Stall-Meadows & Hyle, 2010).

**Narrative analysis.** The current study used narrative analysis to focus on the whole of a person's account rather than focusing on codes and categories (Ezzy, 2002). In the current study, the process of analyzing the narrative storytelling interviews incorporated Rosenthal's (2004) six meta-analytic procedures. The six procedures are analysis of biographic data (i.e., social data of the family and education), text and thematic analysis (Charmaz, 1999, 2006), reconstruction of a life history for each participant (i.e., a summary of participants' narratives using their own words), identifying social discourses in the text, contrasting participants' life stories with life as lived, and

formation of group narratives (Bell, 2010). This process of analysis allowed the researcher to identify the cultural and social contexts that turn meaningless events into meaningful episodes of a larger narrative.

**Semiotics.** Semiotics, a process of image analysis, were used to analyze student-selected photographs (Rose, 2011). Through a process of critical visual methodology, images are interpreted to assess (a) site of production, (b) site of the image itself, and (c) the audience (Rose, 2011). By interpreting photo-elicited visual images at these three levels, the current study expanded understanding about the technological compositions and social modalities at various levels (Table 4). Technological production includes the physical apparatus, such as the use of paintbrushes or digital cameras. Compositional modalities describe color, lines, and use of space. Finally, social modalities describe social, economic, political, and institutional interactions that are produced in an image. Analysis of each student artifact by using this critical visual methodology fostered meaningful interpretation of the photographs used in this study and permitted the exploration of perceived satisfaction of psychological needs in URM health students.

**Grounded meta-analysis.** Last, the study used grounded qualitative meta-analysis to synthesize research on URM student educational persistence and SDT to extract major themes and commonalities (Morse, 2001; Stall-Meadows & Hyle, 2010). First, additional qualitative studies were evaluated for quality based on their rich description of the research methodology, significant findings, and a clear demonstration of trustworthiness (Lincoln & Guba, 1985; Morse, 2001). Once these studies were evaluated and selected for quality, each case underwent initial, focused, axial, and theoretical coding in which data are broken down into phenomena, recombined, and

integrated into theory, specifically SDT. At each coding level, the researcher completed cross-case comparison to improve internal validity. By using constructivist grounded theory meta-analysis, the current study contributed to a larger picture of how URM prehealth students persist.

### **Ethical Considerations**

The previously discussed methods of analysis contributed not only to wider application and generalizability but also to ethical considerations such as increased trustworthiness and rigor. In the current study, the researcher demonstrated ethical conduct by maintaining confidentiality. To begin, confidentiality was maintained for all participants through numerous methods. Participants were notified that all records were stored in locked files or password-protected locations, accessible only to the researcher. In addition, prior to their participation in this study, all participants were advised via informed consent of their rights to voluntary withdrawal from the study, regardless of reason, and request destruction of all of their data (Charmaz, 2006; Lincoln & Guba, 1985; Richards & Schwartz, 2002).

**Rigor and trustworthiness.** In an effort to provide not only confidentiality and trustworthiness, this study used Lincoln and Guba's (1985) four criteria of trustworthiness: credibility, transferability, dependability, and conformability. Credibility was achieved through triangulation and member checking. Triangulation, the comparison of different sources of data, allowed for richer and more meaningful interpretation of the data as reliable. Since the current study is based on the gaps of previous research, triangulation occurred in the comparison of the current study's findings and the findings of previous research (Tucker & Winsor, 2013). In addition,

credibility was achieved through the use of member checking of willing and motivated participants who were selected based on specific selection criteria (Lincoln & Guba, 1985). Transferability was provided through the descriptive and thick narrative description of data (e.g., transcripts and memos) in which the study provided quality meaning and interpretation of results. The third criterion for trustworthiness, dependability, was increased as the researcher uses external audits to produce stable and consistent results. Finally, to ensure data quality, as previously discussed, the current study improved conformability by engaging in extensive memo writing and data triangulation (Daly, 2007; Krefting, 1999; Patton, 2002). Extensive memo writing provided trustworthiness not only by providing observations, but by allowing the researcher to delve further into implicit, unstated, and condensed meanings.

### **Summary**

Chapter 3 presented two methodological approaches, narrative inquiry and constructivist grounded theory meta-analysis, that, first, painted a richer picture of the educational persistence process of URM prehealth students, and, second, compared the current study's findings to findings of previous research. In doing so, the current study explored how the satisfaction of psychological needs impacts URM prehealth students' educational persistence. Methods included sampling based on specific selection criteria, storytelling interviews, photo-elicited interviews, and memo writing. By analyzing memos, research documents, and the transcripts from various interview methods, the researcher compared and contrasted her observations, reflections, and interpretations to those of the research participants. These methods of data analysis yield unique opportunities for additional analyses and interpretations. This section examines how the



current study's theory, methodology, and data collection methods (Figure 4) accomplished the purpose of the study and identify the nature of implications that can be drawn.

Not only did constructivist grounded theory meta-analysis provide qualitative rigor and understanding, but the use of storytelling and photo-elicited interviews as a data collection method revealed the depth and complexity of URM prehealth students' satisfaction of psychological needs. The data from storytelling and photo-elicited interviews gave voice to often marginalized voices by allowing different and unique perspectives and narratives to be told (Bell, 2010). The types of stories students tell determined the impact the narratives may have on providing transformative information about prehealth URM students' educational persistence, which, in turn, may contribute to social change (i.e., increased cultural competency to the underserved).

Bell (2010) describes four types of stories that can emerge during storytelling and photo-elicited interviews: stock stories, concealed stories, resistance stories, and transforming stories (Bell, 2010). Stock stories focus on traditional stories, accepted as normal in mainstream culture, whereas concealed stories are hidden narratives that do not fit in typical social or historical experiences. Tucker and Winsor (2013) demonstrated that stock stories about educational persistence, while true for some students, do not fit the experience of all prehealth URM students. There are untold concealed stories with uncovered meanings, as well as stories of resistance that are not told in traditional explanations of educational persistence by underrepresented students. Resistance stories are examples of people and groups who are heroines in the process of taking action to reform social injustices. These stores are the foundation for emerging/transforming

stories, which engage social change. While stock stories are, generally, the type of story most frequently told, due to the nature of this study's storytelling methods, there was a high probability for this study to yield concealed stories, resistance stories, and even transforming stories about URM educational persistence that may engage social change (Bell, 2010). The current study used storytelling as a method to reveal any concealed stories, identify individuals who have resisted traditional stories, and recognized those who are creating new paths for themselves and others as they satisfy psychological needs. Understanding prehealth URM students' concealed, resistance, and transforming stories through storytelling helps educate those educators and researchers interested in promoting the successful educational persistence process of URM prehealth students to become culturally competent health professionals serving underserved populations.

Finally, while this study is not a traditional mixed-method study, the diverse qualitative methods of interviewing and analyses provide an opportunity to compare the results of each qualitative method for agreement or discord. It is precisely through the aligning of numerous sources of qualitative data that this study adds depth and complexity to the theoretical discussion of how satisfaction of psychological needs influence URM students' educational persistence (Harris & Brown, 2010). Understanding this phenomenon provides educators with salient information to use in developing motivational interventions to support those URM prehealth students who may one day become culturally competent service providers to underserved communities.

## **Chapter 4: Analysis and Findings**

### **Purpose**

The purpose of this qualitative study is to address the role of psychological needs on URM students' educational persistence. This chapter discusses the findings of the current study by addressing two of the three research questions discussed in chapter two: (1) What psychological needs are satisfied when URM students participate in supportive academic and social experiences? (2) How does need satisfaction support URM students' abilities to persist in the face of challenge? (3) To what extent are the current study's in-depth interviews (i.e., memory and photo-elicited) contradictory or complementary?

### **Methodology**

In an effort to answer the research questions, the current qualitative study used three distinct methods of analysis: narrative inquiry, semiotics, and constructivist grounded theory meta-analysis. Data were collected through storytelling and photo-elicited interviews. After all interviews, study participants checked the accuracy of their transcripts. This chapter includes the details of each participant's storytelling and photo-elicited interview followed by a summary of the themes that arose across all participants (Ryan & Deci, 2000). Finally, the fifth chapter provides a meta-analysis of current research findings compared with previous research findings.

The current chapter discusses the results of five case studies analyzed using constant comparative method and narrative analysis to assess larger themes emerging from the literature (Table 5). This chapter begins to explore these themes by presenting the results of the five case studies. Each case follows the outline (a) a description of the participant in the interview to increase the reader's familiarity with each student, (b) a

preliminary analysis of each individual's perception and satisfaction of psychological needs by using storytelling interviews, and (c) a comparative analysis of the storytelling narrative data versus the photo-elicited narrative data. Following the case studies, a thematic analysis of themes across all participants is presented. The thematic analysis illustrates the emergent data that are shared across all participants in the study. However, the analysis does not do justice to the unique individual qualities of each participant's story. The next several sections analyze the storytelling and photo-elicited interviews of each participant in an effort to expose a more comprehensive view of their individual experiences.

Table 5

*Code Counts, Networks, and Themes*

Psychological Needs (Networks)	Count of Network Links	Themes	Codes	Code Count of Themes
Perception and Satisfaction of Autonomy	60	Say It Loud, I'm ____ and I'm Proud	Identity	28
		Faith Is	Spirit	26
		It's a Hard-Knock Life	Economics	41
Perception and Satisfaction of Competence	107	Conjunction Junction	Academic Performance	48
		Together Again	Minority Programming and Conferences	27
Perception and Satisfaction of Relatedness	125	Don't Let Me Down	Family	133
		Anything You Can Do, I Can Do	Role Models/Peers	72
		I'll Be There	Community Responsibility	35

## **Case Study: David**

### **Description**

David Williams is a 25-year-old Black male graduate of a predominately white institution (PWI). He desires to become a physician, obtain an MD/PhD, and to build on the accomplishments of his mother, who is a college graduate, and father, whose educational career ended in high school. As an only child, David did not have a familial role model for his career path, but he does have a cousin who is currently in medical school. She has been helpful in his academic decision-making process as he persists.

David's academic career began in an ethnically diverse elementary school. "I went to county school. It was a mixed school, but it was more predominantly White than Black." He excelled academically as a gifted elementary student except for his red-green color blindness and a speech impediment: stuttering. However, his mother was quick to enroll him in speech therapy, which David recalls vividly: "I remember doing that, specifically, and that helped me out a lot. It taught me how to be patient when I speak. I speak really fast." In high school, he went to a city school and was interested in their performing arts department. His city high school was more diverse than his county elementary school. He described it as full of "Blacks, Mexicans, and Asians." His ethnically diverse educational experiences prepared him for a college career at a PWI where he would face a series of academic and health challenges.

David's first semester of college began with his falling ill with tonsillitis, laryngitis, and a bacterial infection of his lymph nodes, which were subsequently removed. After surgery, he developed an allergy to his antibiotic, as his hands "were peeling away." David described his health after the first semester as "ok, but it was like my first semester, first

year... horrible. Second semester was really good. First semester, second year, not good... second semester was good. It was a ripple effect.” Much like the beginning of his college career, David’s college career ended successfully but with health issues. Right before preparing for graduation, he was sent to the emergency room with irregular heart rhythms and was diagnosed with atrial fibrillation. Despite these health challenges, David received a bachelor’s degree in chemistry and a minor in biology with a premedical concentration.

When he arrived for his interviews, he stood about 5’10” and appeared to weigh 180 pounds. His dark-chocolate complexion was paired with a freshly edged kinky hair cut into a short, polished fade. He was wearing a bright red Calvin Klein t-shirt, clean red and white Nike tennis shoes, and dark gray, stonewashed jeans. When he smiled, his teeth were evenly aligned revealing an almost perfect, off-white smile.

As a child, he “got in trouble for talking and [his] mouth,” but when I observed David interacting with his peers in the summer preparation program, I noticed that he was a natural leader. One might have thought that David was well connected as he networked easily and talked to anyone. If asked to participate in any class activity, David appeared to enjoy communicating and being the sole voice in the room. One afternoon, while I was watching David eat lunch with his friends, David jumped out of his chair and jogged over to the associate dean of admissions, an African American pediatrician who was passing by, and said hello. His prehealth peers seemed to admire his ease with such an influential man.

In my office where the interviews were conducted, David’s ease continued. When David arrived for his storytelling interview, he greeted me with a smile of familiarity. I obtained his verbal and written consent and reviewed the purpose of the interview.

Without hesitation, we began the interview. At the conclusion of the storytelling interview, we began the photo-elicited interview for which David brought three photos to discuss. Unique to all of the other study participants, none of these photos was personal; they were taken from the Internet (Figures 6-8). The first photo was of a man praying on his knees, the second was a picture of EKGs with a stethoscope and plastic red heart, and the third was an image of an African American family.



*Figure 6.* David's photo-elicited interview photograph of faith (Nikitabuida, 2014).





*Figure 7.* David's photo-elicited interview photograph of cardiology (Erdogdu, 2014).



*Figure 8.* David's photo-elicited interview photograph of family (Monkey Business Images, 2014).

## **Storytelling Interview**

David's storytelling interview revealed numerous narratives that demonstrated how he successfully supported autonomy, competence, and relatedness in his educational persistence.

**Interest and commitment: Perception and satisfaction of autonomy.** I began the storytelling interview by asking David to tell me about his earliest memories of wanting to be a physician.

I remember around like fourth grade or fifth grade, I saw all of [my mother's] boxes. I started going through them, and I was sitting at the table. And I saw her stethoscope. And I saw this big red . . . like Clinical Nursing book. It was huge. And I just sat there going through pages. You know, just like really doing nothing. And I saw pictures, and I am a visually stimulated person. I learn visually, like everything... I am a visual learner. And I saw the female anatomy (laughs). I was like, oh, wow, you know (laughs)! So that was like, hello! You know... and that interested me a lot, not, you know, in a perverted way but I was just like, wow, what's this?

David demonstrated pure interest and curiosity in the sciences through his perusal of his mother's nursing books but also in his description of his response to family illnesses. In a somewhat detached fashion, David described how his grandmother's illness was a source of interest for him.

My grandmother had throat cancer. She used to be a smoker... in her younger days. Uh, and as a result, she had a tracheotomy done. And I remember watching

my mother clean her out, clean her trachea out and suction her out and all that. I was like, *wow*, you know, what is this?

David described his autonomy as his desire to do what he is passionate about. His autonomy was not only driven by passion but also by a sense of responsibility to others. David recognized the sacrifice of his mother to drop out of nursing school and expressed a responsibility to achieve what she could not.

My mom had been in nursing school, then she dropped out. She had me at 23, so she dropped out. She realized that, um... I was progressing fast, and she wanted to make sure she could really hone in all my abilities. So essentially, she gave up her dream of becoming a nurse. My mother quit nursing school for me. She gave up her dream, so I can have my own dream. And that's my main motivation....if, uh, seeing my dream through. To know that her, it wasn't in vain, my dream is a bridge of hers, because she gave up her dream so that I can have my own dream.

David's autonomy was not self-indulgent but, instead of being true to himself, he accepted responsibility for the well-being of his mother. By accepting responsibility, David satisfied his need for autonomy and relatedness. He was motivated by the purposeful dream of a career in medicine that his mother could not achieve. David recognized that he was pursuing his own dream but that his dream would not be possible without his mother's sacrifice. Therefore, he illustrated responsibility toward others that also met his need for relatedness. His deep sense of purposeful pursuit for a career in medicine satisfied his need for autonomy in his educational persistence process. However, to satisfy his need for competence, David described a different set of motivators.

**Propelled by performance: Perception and satisfaction of competence.** To achieve competence, David described having to identify successful academic strategies in an academic setting. Part of satisfying his need for competence required that David acknowledge the challenges that faced him as he pursued a career in medicine.

[My family] told me, you have to do more as an individual than the other people because you have two strikes against you: You are Black, and you are male. People are intimidated by you regardless of how smart you are... [my family] always told me to work hard and always have good work ethic, because that is something no one can take from you. I want to make sure I am working just as hard if not harder, you know. Coming in, staying longer, doing what I have to do, so you can't say that I didn't try. If I don't make it, then ok. It wasn't meant for me to make it, but I did try. I was persistent, and I was diligent.

David's family did not accept that intelligence alone was enough to succeed. David incorporated these familial introjects. David's need to work harder was filtered through his and his family's "third eye," which W. E. B. Dubois described as double consciousness where one sees oneself through the eyes of others. David recognized that, to perceive and satisfy his need for competence, he would have to work harder than other students did. His ability to work hard satisfied his need for competence in his educational persistence process, but that was not enough to maintain persistence. His need for competence was enhanced and maintained in part by the satisfaction of his need for relatedness.

**It takes a village: Perception and satisfaction of relatedness.** David's competence was enriched through his relationships with key individuals throughout his educational persistence process. Working hard allowed David to persist through many

difficult academic tasks, while supportive relationships contributed significantly to his academic success. David highlighted the impact of a supportive instructor whose relationship allowed him to demonstrate his competence:

I am color blind. Uh... most people don't know, and never will know unless I tell you. I only had one academic problem, and I was in honors biology in middle school reviewing PCR applications. We had [magnetic] beads, and we had solid beads and clear beads. And I never knew it was so many colors of beads but for hair, you know. And so we were doing the Watson and Crick DNA module. We were doing solid beads for, um... DNA, clear for RNA. The clear beads... they were harder for me to see because they weren't...the color wasn't as hard. And the way the light was... refracting off of it, I was like, oh my God. I remember I was sitting there like, ok... I am a red and green color blind...uh...but anyway, I can see the colors, the solid beads. The clear ones, I had a little problem with, you know, with the blue and the purple, the red and the orange and stuff. I said, oh man, you know. You know! It's... so I remember that, and I remember trying to hide it from my teacher. I was like, hey, Dr. Jackson um... what color was it? Did you want us to get the red beads? Oh... which one is it? I can't get it. So she would get it and she whispered, "Are you color blind?" I was just like, yeah, ok. So she made sure I knew it, which ones were, but she did not make a scene out of it.

David's relationships with Dr. Jackson allowed him to identify his weaknesses academically and ask for help. Without this help, satisfaction of the need for relatedness, he would not have been able to satisfy his need for competence. Likewise, David's need for relatedness and autonomy drove his sense of responsibility to his community. David

demonstrated that his need for relatedness extended not only to himself but also to other African American males.

The main reason I am going into medicine is to help other people. It's to educate young African American males to show people that this... you can get out of whatever situation you are in, whether it is poverty, be socioeconomic barriers, and, uh, it is really to serve other people. You know, I feel like God has called me to be a leader and to be a servant. And I want to show other people that I can do it. It has been a tumultuous road for me. But you know, let me show you how to do it.

In this example, David demonstrated that his purpose was shaped by his faith [autonomy] and sense of community responsibility [relatedness]. Throughout these storytelling narratives, David's psychological needs complemented each other in his pursuit of a career in medicine. This was highlighted in David's interactions with role models through a high school outreach program.

We met Dr. Ben Carson. We met the surgeon general, David Satcher. We met the other Surgeon General, Dr. [Antonia Novello]. We met Dr. Keith Black. And these all, well-known African American figures, one being Latino, but they put a charge on all of us to be the best that we can. Be all we can be and don't give up... to be diligent in all things, to be faithful in all things. And they told us, you know, [don't] stop... but in the event that you don't reach the highest high that you want to reach, still strive and still work hard, and then you will push forward. We have charge on us to essentially take the banner that they have set and move forward. They pretty much demanded we do that as minorities and set an example for the

people. We go back and we reach back with other people because we have been helped.

This experience demonstrated how David's encounter satisfied his autonomy, competence, and relatedness. These role models were underrepresented minorities to whom David related and from whom he sought encouragement. These informal role models satisfied his need for relatedness, and, as they spoke about achieving, they encouraged competence and mastery. Finally, these role models all reminded David of the purposeful pursuit of his career choice, which satisfied his need for autonomy. Through the storytelling interview, David was able to describe numerous ways in which he satisfied his psychological needs. These relationships were assembled from his storytelling interview but can be triangulated through the addition of his photo-elicited interviews. The subsequent narratives were gathered during David's photo-elicited interview, which provided additional information about how David perceived and satisfied his psychological needs as he persisted to a career in the health sciences.

### **Complementary or Contrasting: Photo-Elicited Interview**

David's storytelling and photo-elicited interviews were both similar in their content; however, the photo-elicited interviews identified and illustrated the power of additional motivators, such as faith, in his educational persistence process. In addition, the photo-elicited interviews helped to prioritize the most influential motivators on his educational persistence process. David discussed his need for autonomy in his storytelling interview by exploring his curiosity with his mother's nursing books and his passion to give back to the community. However, in the photo-elicited interviews, David focused on the satisfaction of his need for autonomy through his faith.

**Interest and commitment: Perception and satisfaction of autonomy.** In his photo-elicited interview, David spent the majority of the interview discussing the role of faith on his persistence process. His picture (Figure 6) illustrated an African American male dressed in all black on his knees praying with his hands folded in front of him. David described this picture as an illustration of how faith motivated him to persist into a health career. While memo writing after David's interview, I noted David's intense dependence on scriptural recitation. The following is an excerpt of David's transcript. Scripture references identified during my memo writing are included in brackets below.

The picture shows faith. That is the pillar that I have to live by because, without faith, you know, it is impossible to do a lot of things [Hebrews 11:6]. And I remember... you still have to have faith the size of a grain of a mustard seed [Matthew 17:20]. Because even though it doesn't look like what I want it to be, I still feel that there are things happening beyond my control that is still going to put me where I need to be. And when I get there, I have a testimony, you know [2 Timothy 1:8]. I just need to believe in myself and believe in God and me and just do what I can do and let God do the rest [Isaiah 64:4]. Faith is things not looking like what you want them to look like, but things looking like how they should look like. So faith is the absence of things not seen and of things hoped for [Hebrews 11:1]. These are things that I hope for, but I don't see them right now. You know, having faith that all of this is not going to be in vain [1 Corinthians 15:58].

Through analytic memo writing, I recognized that David seemed to be reminding and reassuring himself of his spiritual beliefs by reciting scriptures from the Bible. The recitation of scripture seemed to calm and encourage his insecurities about the educational



persistence process as he spoke slower and more deliberately. The faith that David described demonstrated his intense commitment to something other than himself. Though his declaration of faith, he demonstrated autonomy, and he chose behaviors that were an expression of his authentic self.

**Propelled by performance: Perception and satisfaction of competence.**

David's purposeful and autonomous academic activities while motivated by faith were not successful without autonomy support and the satisfaction of David's need for competence. David's discussion of his photo of cardiology (Figure 7) confirmed David's ability to work hard from the storytelling interview and painted a more colorful picture of what competence looks like in his educational persistence process. David discussed entering a specialty of medicine in which he was knowledgeable and felt deserving.

I had a cyclical episode. I passed out in May. I had to go to a cardiologist, and I was able to see [a profession] I was always interested in... too. It is the second most vital organ inside the body, outside of the brain. It is also the most effective organ because of hypertension, you know, hyperlipidemia, diabetes, everything else. When you look at that picture, often times when you see any picture and you see someone with a white coat or books or a stethoscope or whatever, you assume "Wow. They have it all. Wow. Life must be so good." But you know, as it pertains to me, I... life hasn't always been good, I worked hard for that, and it was a long time coming for me. I earned that. I deserved that, you know. Not from a ... very arrogant perspective, from a real perspective that I worked hard for it, you know. And I will continue to work hard for everything that I have, you know. The MD, the MPH, the practice, whatever that may be, you know... as all of that

coming from hard work and I am always going to recognize that, and I'm going to stand on that because I deserve it.

David expressed competence as he took on a personal challenge such as achieving a pre-medical degree and persisted. With a slightly overconfident tone, David explained that, not only will hard work make him a competent physician, but he deserved this profession. This aspect of entitlement as a result of hard work was not expressed in the storytelling interview and emerged only in the photo-elicited interview. Through the photo-elicited interview, David illustrated that his need for competence was satisfied by confidence and entitlement to academic success.

In addition to the themes of faith and academic success emerging from the addition of the photo-elicited interview, David also explored the importance of family support in his persistence process as family satisfied his need for relatedness. While David discussed the satisfaction of his need for relatedness in the storytelling interview, he focused on his relationships with family, teachers, and role models. In the photo-elicited interview, David's tone changed as he described the role that his parents played in his need for relatedness.

**It takes a village: Perception and satisfaction of relatedness.** In his photo-elicited interview, David focused on the impact of his parental introjects on his persistence. The photo-elicited interview allowed for more positive and intimate storytelling as he described only positive family influences (Figure 8). In contrast, throughout the storytelling interview, David referenced his family in both positive and negative ways. Below, David acknowledged the positive and negative role of parents on his persistence process during the storytelling interview.

As a child, my parents were very supportive, financially, you know... verbally, spiritually, uh, but it was a two-income household. So they supported me in everything I did from extracurricular to academics. My father has always had a... my father drinks. He is an alcoholic. And so he... as a result of that, he has gout. He also acquired promontory arthritis, which is similar to that. My parents... mom was still supportive, but she was really stressed and had a lot on her plate. So I decided to work and work, and make several... help my parents out, help my mom out. Uh...my father, uh, was having some complications at work as a result to his gout. So, as a result, he had to go to on disability. But my mother was still supportive and everything... My mother is verbally supportive. She is spiritually supportive. She is more of the nurturer. She is the backbone. My mother was there. My family was there. My father wasn't there.

In the storytelling interview, David separated his father from his definition of family and source of support. This separation appeared to be driven by David's father's inability to be present verbally, emotionally, and physically. In this scenario, David's need for relatedness was not satisfied in his relationship with his father, but it was satisfied in his relationship with his mother. The tension between David and his father during the photo-elicited interview, in contrast, was absent, and, instead, David focused on the strength of his family as a support system.

I have had a very big family. All of them have been very close knit. All of them have been very supportive of us. My cousin, who is in medical school now, has been really supportive of me. She has never denied my option to get into medical school. My mother is really a motivation, my aunt, my uncles, other people like

that. They are supporting me a lot. And for me, there is... a lot of them are supporting me by not asking a lot of questions. They are just trusting me under the assumption that I did well or that I am going to do well and that I am going to get into medical school. So they believe in me and my abilities and my, uh, potential.

In his photo-elicited narratives, David's focused solely on the positive aspects of his family and omitted his tension-filled relationship with his father. The storytelling interview revealed a more complex story about the role of relatedness, particularly with his father, than the photo-elicited interview. However, the omission of information about David's father during the photo-elicited interview only provided increased understanding when compared to the storytelling interview.

### **Analysis**

David's educational persistence process was supported by the satisfaction of autonomy, competence, and relatedness. David discussed how he satisfied his need for autonomy through his faith and sense of responsibility to others. His need for competence was achieved through hard work and confidence, while his need for relatedness was supported through his relationships with family, role models, and instructors. The use of a photo-elicited interview confirmed already identified themes but also revealed interesting insights through the omission of information (i.e., omission of David's father in family support system) or the inclusion of new and complex narratives (i.e., faith). David's narratives, while individually isolated in this section, confirmed numerous themes that emerged across all the participants.

## **Case Study: Shelbra**

### **Description**

Shelbra Walker is a 28-year-old Black female who graduated from a predominately White state university with a bachelor's degree in biological science in 2010 and decided to start a post-baccalaureate program in chemistry in the fall. Her educational pursuits are on the heels of her father who has a doctorate in theology and her mother who has a master's degree in accounting. Her father is a pastor, and her mother "does not work." She described her parents' lifestyle as "very comfortable... you know, like super comfortable." However, Shelbra's path to graduate school has not been as comfortable.

After graduating high school at the age of 17, Shelbra enrolled in the Navy as a hospital corpsman. Shelbra chose the position because she "already had an interest in medicine and I didn't know exactly what I wanted to do." As a hospital corpsman, she worked in the emergency room for a nurse and physician who encouraged her to finish her associate's degree and pursue a medical degree by giving her patient notes to write and allowing her to see patients by herself. The more experience she received, the more she "wanted to do it for real."

Shelbra's experience as a corpsman and certified EMT in different medical settings ranged from the emergency room to clinical encounters in family medicine, pediatrics, and internal medicine, but her emergency medicine experience was her favorite. However, she found it difficult to create bonds with patients and later watch them pass. "You lose them in the most horrific way possible known to man, it takes a toll on you." Now that she is a civilian, she is still adjusting to the lack of structure and income.

Shelbra is a tall, muscular, dark-skinned woman with a cheeky round face. She arrived for the interview wearing a fashionable, thigh-length, black-and-white stripped

winter jacket with a bright yellow infinity scarf tied around her neck. Her eyes were hidden by a pair of almost black Ray-Ban sunglasses, but, above the glasses, I could see her perfectly plucked, high-arched, black eyebrows. Her straight black hair was in a high bun on the top of her head. When I greeted her, she gave me a reserved smile with her lips pursed.

### **Storytelling Interview**

Upon gaining consent, Shelbra began her storytelling interview. Shelbra's storytelling interview revealed numerous narratives that demonstrated how she successfully supported autonomy, competence, and relatedness. This section presents these findings.

**Interest and commitment: Perception and satisfaction of autonomy.** Shelbra recognized that her interest in a career in medicine was early but fleeting. Her first memories of passion for the field were as a young child. Below, Shelbra described her initial curiosity with health care and her father's response.

When my brother was first born and I was five. Everybody was buying stuffed dolls, and I think I threw a tantrum and threw one of his stuffed bears. And then I was, like, oh, the bear is hurt. Then I put Band-Aids all over it, and I, like, took some, um...some thread and, like, wrapped it. My dad was like, is she like crazy? [laughs] And it was, like, no, I have always had that, you know, had that in me, to, you know, help people. If you are hurt, I want to make you feel better. So he said that was the first time he kind of noticed that. You know, he bought me a, uh... he said he first bought me a ... I think it was a nurse's little medical play kit...he said I

would play with that but he said... when I was 4, he bought me that uh...what's that surgery game where you pick up the pieces.

In this storytelling narrative, Shelbra illustrated her autonomous curiosity and passion for the field that was supported by her father through the purchase of career-related toys. Shelbra highlighted the impact of autonomy support on need satisfaction as she described the impact of a lack of autonomy support, not only on her need for autonomy, but on her need for relatedness.

**It takes a village: Perception and satisfaction of relatedness.** Shelbra received significant autonomy support as a corpsman from her coworkers in the ER, as they encouraged her to pursue her associates, bachelors, and medical degrees without trying to pressure and control her behavior. However, her educational persistence process was redirected as her need for autonomy and relatedness, as a corpsman, was challenged by racial discrimination. The discrimination she experienced shaped the way in which she identified with others and herself and assisted her to make the autonomous decision to leave the military.

I hate to say it like this, because I don't have anything against White people, but White girls can walk around and color their hair whatever they want to. But the day I... I had, like, a little mini fro. It was so cute. You know... military regulations, you have to have a certain length. It has to be at least such and such inches long or whatever. And they, you know, literally took a ruler to my hair... and yes, it was so, like, demeaning. And I think I cried this day, because I just never felt like I was Black until then. But they took a ruler to my hair to measure

how thick it was. And I had a little weave in there, but it wasn't like an outlandish hairstyle. They said it wasn't natural looking or anything. This is the most natural my hair has ever looked, because I think I was going natural at the time. You know, the kinky look, curl or whatever. And they couldn't show me anything that said like no afros or not... nothing like that. But they said my hair was too ethnic.

Shelbra described that, in this controlling experience, she "felt" Black. Identifying as Black was an adjustment for her as she, up to this point, had grown up as a child of privilege whose racial and ethnic identity was not part of her primary identity.

I wasn't an inner city kid or anything like that. It wasn't in an all-Black school and the one White person in there...you know, like, my cousins, you know. They went to, like, predominantly Black... like, 98% Black school, so you would notice a different race. Like, from preschool up, it was always a good mix, so I never really noticed until I moved to Connecticut. I was, like, whoa...[laughs].

In an effort to comply and fit in, Shelbra adjusted her hair to fit the military's restricted policies but was struck by the sting of rejection. This rejection of her identity occurred not only in the military but also in her family interactions.

My cousins kind of subliminally came at me, like I thought I was better than them. I spoke better than them. I couldn't curse quite as well as them. You know, it was things like that. It wasn't just outward. It was things like that, like I wasn't Black enough... like I wasn't good enough. I didn't wear Jordan's all the time. I didn't have the, you know, hard ponytails or what have you. I didn't do all those things. Until this day, my cousin, you know, she is my closest cousin, but, uh, she calls me Becky, you know... because I am just so White to her, you know. I don't care. You



know, but that...in her eyes not a Black/White person... I guess an Oreo in her eyes, you know, because I don't do the things they do.

In both of these examples, Shelbra demonstrated how one's perception of race and ethnic identity can negatively impact one's sense of autonomy and relatedness. Shelbra was not Black enough for family members, but "too Black" for the military. This impacted her ability to develop meaningful relationships both at home and work. Without those meaningful relationships, she quickly made the decision to leave the military. Not only did the breakdown of her relationships impact her persistence process, but it also impacted her own perception of her autonomy. Shelbra seemed to reject and defy the controlling behavior of her family and military, as they were not supportive of her true, authentic self. However, these negative experiences had positive implications on her educational persistence. These controlling behaviors allowed her to seek out new opportunities and people who were supportive of her true, integrated, and autonomous self.

### **Complementary or Contrasting: Photo-Elicited Interview**

Shelbra's photo-elicited interview shifted focus from her being motivated by overcoming challenge through the use of psychological needs to how she found autonomy support in herself and others. Shelbra brought four pictures into the photo-elicited interview, two of which are discussed, because of how they relate to the satisfaction of psychological needs. The first image highlighted the satisfaction of autonomy through monetary gain and dreaming.

**Interest and commitment: Perception and satisfaction of autonomy.** The first image useful to discussing the satisfaction of autonomy was Shelbra's picture of her mother's wedding ring. The picture was a professional photographer's snapshot of two,

small, milk chocolate brown hands crossed on a white doily. The hands have no accessories or polish except for a stunning marquise diamond halo setting on a white gold base and weighing, one would imagine, a couple of carats. Shelbra described her mother's ring as providing her a purposeful sense of accomplishment, pride, and vision. This ring affirmed her desire to pursue a medical degree because she believed the degree could give her access to a comfortable life.

This picture is of my mom's wedding ring. Um, it's pretty massive (laughs). And it's awesome. It's gorgeous. It's beautiful. And that picture really gets me every time I see her ring. Her ring is, like... it represents everything I want in life. Like, I want to be able to be comfortable enough to say... not to even brag about it, but to be able to say, literally, I have someone's car on my hand (laughs). That is what that ring is. It is someone's car on her hand and not a cheap car, at all. To literally live carefree, you know, and have this life where you just wake up and work if you want to and if you don't, that's cool. You know, I always want to work, of course... but to be able to do that, and not only to be able to do that, but to be able to give your children anything they want.

In the storytelling interview, she was driven by autonomous curiosity for the field of medicine, but, in contrast, Shelbra's photo-elicited interview acknowledged her strong desire for material things. This is a particularly interesting motivator, as it suggests that she is losing some intrinsic and autonomous motivation and is becoming more individualistic. As a child, she was interested and curious in medicine, but now she is interested in medicine as a means to finer things. However, it is not just the acquisition of money but also an expectation for success that builds legacy. She desired to maintain or

exceed the lifestyle of her parents. Shelbra recognized that her financial privilege as a child left her anticipating greater accomplishments and competence so that she could give back to her children.

I can even talk like I'm the only child, because that's how my parents treated both of us. Like, there was never something my brother had that I wished I had... they have given us everything. And it wasn't a hard thing because my parents actually... to do that and work hard, you know, blood, sweat, and tears, not for yourself... but for your kids, so that they can have this life. Like, you know, why would you want to live anything less than this, ever? You know, and that's how I think. How would I ever want to live any less than my parents' baseline gave? You know, that's like hopping out of a Porsche and hopping in a Pinto.

Monetary success is an extrinsic motivator that Shelbra used to temporarily sustain her interest and commitment to the field of medicine. This narrative was unique to her storytelling interview and highlighted the relationships of autonomy and extrinsic motivators, such as money, to satisfy her needs temporarily. It also highlighted how individualism and autonomy coincide. Underneath her language littered with individualism, Shelbra recognized that her ability to gain wealth would help others. From her photo-elicited interview, Shelbra was able to demonstrate how she engaged in introjected regulation and autonomy.

**Propelled by performance and it takes a village: Perception and satisfaction of competence and relatedness.** Shelbra's educational persistence was driven not only by her desire for autonomy but also by her desire to meet her need for relatedness and competence. The second picture she displayed was an image of her outside of a chapel

after her undergraduate graduation. Her competence was emphasized in her pride for having worked hard to earn a degree; however, she noted that this was a meaningful event because it satisfied her need for relatedness, which supported her ability to persist. She was carrying a bouquet of flowers and her diploma in her arms and was surrounded by no fewer than nine family members who were smiling at the camera. Family members included her aunts, cousins, mother, and father. Of all of these relationships and people who came out to support her, she mentioned her aunt as her biggest supporter. This relationship helped meet her strong need for relatedness.

Family to me means the most important thing. I was more excited about my family all being together than my diploma. So this... that was an awesome day to even bring them together. I thought that would never, ever happen. And that... from both angles, each side motivates me to be great. Like this aunt, if I ever need anything. Or if I need to talk about my parents, she understands where I come from. And she is such a real person, you know, so she has always had my back, you know. If things got too rough at home, you know, I would go and talk to her, you know. So, I mean... for her to be there and this aunt to have my back since whatever I wanted to do and even more so now than ever for them to be together, that just meant ...everything. They motivate me to be great, you know. If I don't ... if I don't end up being great, I know they will love me anyway and support whatever I decide to do. And, you know... at the end of the day, I would never want to let them down.

This image highlighted how Shelbra desired unconditional relationships in which each person was able to give but no obligations were created. Her aunt satisfied her need

for relatedness by giving her genuine, authentic relationship in which she was not pressured or controlled. Through the use of photo-elicited interviews, Shelbra shifted the focus of her reasons for persistence to positive rewards such as autonomy and relatedness, which contrasted her reasons for persistence (i.e., overcoming negative experiences) in her storytelling interview. Comparing both interviews, one can conclude that, through both monetary rewards and authentic relationships, Shelbra continued to persist to a career in medicine.

### **Analysis**

Through both storytelling and photo-elicited interviews, this section explored Shelbra's perceptions and satisfaction of autonomy, competence, and relatedness throughout her educational persistence process. Her autonomy was demonstrated in her curiosity and interest in health careers as a child but also in her purposeful behavior to achieve for monetary gain to give to others. Interestingly, in Shelbra's storytelling interview and photo-elicited interview, there was an absence of significant narrative highlighting the perception and satisfaction of competence. This absence of stories or photographs around a need or satisfaction for competence may highlight her insecurities and/or an inability to describe her success as a result of her own hard work. While she obtained her bachelor's degree, she did not discuss her ability to achieve during either interview. Additionally, Shelbra reviewed how she stayed motivated as a result of her relationships with family, both supportive (i.e., her aunt) and nonsupportive (i.e., cousins not accepting her "lack of Blackness"). Relationships both supportive and nonsupportive helped her satisfy her psychological needs for relatedness and autonomy as she found opportunities to redefine herself and to persist. Finally, through the use of extrinsic

motivators such as money and prestige, Shelbra demonstrated how her psychological needs were satisfied in her pursuit of a medical degree. Self-determination theory suggests that Shelbra cannot maintain successful persistence and well-being if these extrinsic and individualistic motivators outweigh her intrinsic motivators. However, while extrinsic motivators are important to her, they do not outweigh her autonomy and intrinsic motivation. While Shelbra's narratives of persistence are isolated in this section, her methods of need satisfaction are shared by other study participants.

### **Case Study: Khadijah**

#### **Description**

Khadijah Abadi was a 20-year-old Palestinian and Arabic American. If she were to describe her nationality, she would say "I'm Palestinian American, I was born and raised in America but my roots are Palestinian." When Khadijah was five years old, her Palestinian mother raised her and her two older siblings as a single mother after a divorce from a verbally abusive husband. Priority number one for Khadijah's mother was the education of her children, so Khadijah and her siblings were obtaining college degrees as their parents had done before them. Her mother reminded her frequently that her father was not around to help, so she "cannot waste her opportunities like other people." As a result of her mother's strong value for education, Khadijah enrolled in college and decided to pursue a premed/biology major with a minor in sociology.

While Khadijah was passionate about obtaining a prehealth degree, she was just as passionate about her family and faith, Islam. When she entered ninth grade, Khadijah chose to wear a hijab to school. Even after the US terrorist attacks on the World Trade Center on September 11, 2001, when her mother discouraged her from wearing a hijab, Khadijah continued to wear her hijab proudly.

Khadijah arrived for the interview dressed in a loose, ox-blood knit sweater with black dress pants hiding a rather small frame. However, her most beautiful adornment was her stunning Al-Amira, violet hijab. Her knit sweater was complemented by a perfectly wrapped ox-blood hijab underscarf. While struck by the beauty of her outerwear, her olive face appeared flawless. Her teeth were even and straight, and her eyes squinted as she smiled.

### **Storytelling Interview**

#### **Interest and commitment: Perception and satisfaction of autonomy.**

Khadijah's interview began with her storytelling interview in which she detailed how she satisfied her need for autonomy through her interest, curiosity, and autonomy support from her mother. When asked why she was pursuing a career in medicine, Khadijah responded autonomously:

It's like an innate thing in me, and I am just, like, this is what I want to do... that I have never thought of anything else really. I had peers in college who are, like, still undeclared or they are switching their major and are not quite certain what they want to pursue. I was always interested in learning why. I was always asking why this? Why that? How does that work? So it was, like, one of the early things that I had when I would go to the doctor; I would observe everything around me, and I just thought it was really cool the way they would check your blood pressure and then ask you, like, diagnosis and, like, uh (four second pause), and then when I would say what you have and why. Whenever someone got sick, I always, like, Google it or I would say, "what's wrong?" and then go to Google and try to figure [it] out... because it's just interesting... yeah diagnose them. You have this.

As Khadijah described her interest and passion for a career in medicine, her face lit up, and she spoke at a rapid pace. She expressed no controlling motivators, as her desire to enter medicine seemed to be compatible with her autonomous self. This fit between career choice and her autonomous self was confirmed in the autonomy support she received from her mother:

“Don’t do something that you don’t want to do. Don’t think that I am pressuring you to be a doctor. I want to pressure you to be successful in whatever you like doing”. And that kind of stuck to me ‘cause it’s not like she was there just trying to get me to be a doctor and that was all, and for her benefit saying, like, “I have a daughter who is a doctor.” It seems like she wanted me to be happy and not go through the same struggles as she did and she cares because she sacrificed so much. So the way she talked to me just made me feel like just saying, like, “Hey, make sure you are doing you are happy. Don’t do what other people want you to do. What looks good? Whatever makes you happy.”

Khadijah’s mother provided a near-flawless example of autonomy support for her daughter. In this example, Khadijah’s mother resisted the urge to engage in controlling behavior but reminded her daughter of the choices available to her and to make choices congruent with her true self. Khadijah seemed to recognize the value of autonomy and relatedness as she described how her ethnic and religious identity negatively impacted her autonomous behavior.

I really like volleyball; volleyball is really, really fun. I love it, and I was there with the hijab, covered up. Everyone is in booty shorts and everything [laughter] and I was, like, Why did I do this, what the heck? I’m just waiting for someone just



pinpoint me like I just was asking for it basically. My mom would take me there every day. I don't remember what she thought about it; she probably thought I was crazy, like "What is this girl doing?" [Laughter] One time we were in the gym and one of the girls looked at me and was just, like, "Why do you wear that?" and her face, I still remember because just the way she looked at me. I felt like an outsider the way she looked at me with that face. You can tell when someone sees you as an outsider. I just felt like I wasn't connected to me, I feel like they judged me for what I was wearing, like I knew. I felt it, no matter how nice and how social I was trying to be, they always looked at me for what I was wearing. I really hated how they looked at me. I remember one night I came home and I was just, like, sad and I was, like, crying and my mom was, like, what's wrong? I just ended up telling her, "I feel like an outsider, I don't feel like... I feel like no matter what, they are just going to judge me by what I'm wearing." And she actually told me, like, "why don't you just take it off," and I was, like, "No." After she asked me to take it off, I just felt better for some reason. She told me, "It's either you cry about it or you do something about it, take it off so people can stop making you feel that way," and I didn't want the latter choice because, like, no, I can't believe that was supposed to be an option. I was, like, why would I change for someone?

Instead of allowing Khadijah to sit in a place of paralyzing judgment, her mother provided autonomy support. Khadijah's mother reminded her that she was in control of her behavior and that she could change her behavior to achieve different outcomes. While Khadijah did not change her behavior by removing her hijab, this reminder alone provided her support to regain satisfaction of her need for autonomy. Khadijah used this example to

remind herself of her autonomy as she persisted to a health career as well. The autonomy support provided by her mother sustained and promoted autonomy, but family was also a source of strength for Khadijah's satisfaction of competence as well.

**Propelled by performance: Perception and satisfaction of competence.**

Khadijah's father was a large source of resentment in her life. His absence and lack of support motivated her to work hard and achieve. Ironically, she compensated for her lack of relationship with her father by satisfying her need for competence.

My dad would always make [my mom] feel stupid, like, "Oh, you think you're so smart you're going to go to school, you think you're smart going to class you're not going to make it you're dumb." In Arab culture, not part of the religion because culture and religion are not the same thing, it can be very demeaning and very sexist thinking. A woman is stupid and their place is at the house. [My mom] was, like, don't think you can't do things just because you're a woman or just because you wear the hijab, you can do whatever like with the hijab. It's not going to stop you. My mom ended up getting a degree in biology and a master's in teaching. She did all that even though someone was trying to put her down at the same time. It made me want to pursue to show him wrong because of what my mom went through, I can do the same thing.

Khadijah's desire to work hard and persist in a health career was driven by her intrinsic desire to overcome despite her father's sexist behavior. While she desired relatedness in her persistence process, she focused instead on satisfying her need for competence. The intensity of Khadijah's satisfaction of competence often went unrecognized by not only her father but her extended family. While her family did not

recognize her competence, Khadijah perceived and satisfied her need for competence through hard work and accomplishment:

It's, like, basically you are on your own. The first time that my family came [to the U.S.], they came to stay with us for 8 months, because they had to renew their Green Card, and they couldn't find a place to stay. They stayed at our house, and it was, like, a packed house, and when I was studying, they would just be, like, "Ah, hang out with me," and I was, like, "I've already hung out with you enough." They don't understand that it takes a long time to actually study, and the classes are really challenging. They didn't really take it seriously. They were, like, "oh well, that's dumb." They just kind of made it like a joke and like I wasn't even, like, trying. They made it seem like I'm making a big deal of nothing and I am not even doing anything. Like nothing, like I'm not trying at all.

Despite the lack of recognition for her ability to demonstrate competence, Khadijah persisted. The lack of recognition and acknowledgment for her academic competence was ignored amongst her peers, as well. Not only were her achievements and hard work ignored amongst her peers, there was also a high level of competitiveness. Khadijah satisfied her need for competence despite academic competitiveness:

[My classmates] are just really competitive with everyone. It's kind of annoying, because they really do try to put people down. This year, in genetics, I was sitting down in Sherbaum Hall, one of the buildings on campus, and this guy that I took organic with over the summer, he sat down and we just talked and talked. He asked me about the classes I was taking, and I told him about genetics. He says, "Oh, I took that, too." He's, like, "Yeah, that class was so difficult, blah, blah," and so I

said, “Oh, how did you do, did you do well then?” because he sounded like he did bad in it. He said, “No, no. I got, like, the highest grade in class.” He was basically trying to make me feel bad, to make himself feel smart. He was, like “Well, what classes are you taking next year?” And I was, like, “I’m taking human genetics, I love the professor. It was a challenging course, of course, but I love the professor. I’m really interested, and I like really like it, so I’m taking human genetics.” And he’s, like, “You’re taking it, even though you get a B in the class?” Like, Why would you go take the other level, if you get a B?” But, like, a B is good. So I’m, like, okay; that makes me feel stupid, like you have to get an A if you think you’re going to be expected to do well in the next class. He made me feel like I’m not capable of going on and made me feel stupid...I [had not] taken the final yet, so I was kind of freaking out for the final and because everyone was telling me it was hard, and so I asked him, “Like, what did you think of the final?” And he was, like, “Oh, it was so difficult!” And so I said, “Oh, so you didn’t study?” and he was, like, “No, I studied a lot.” He made it sound like there’s no point in studying, like it’s so difficult. It was, like, a week before my final, and I was like freaking out. It took me a while to finally get my act together and be, like, hey, I’m going to do this. And I did, like, really well, so it made me really happy.

Despite discouragement from her academic peers, Khadijah achieved competence. She followed her natural, intrinsically driven instinct to pursue courses that she was interested in and to work hard on the courses that were challenging. By doing the latter, she satisfied her need for competence.

**It takes a village: Perception and satisfaction of relatedness.** While Khadijah's competence was satisfied through her own hard work and internal motivation. Her need for relatedness was satisfied through the example of her role model. In the following description, Khadijah demonstrated how her role models satisfied her need for relatedness and inspired her to persist;

She's an art teacher, and that's not typical at all; she has a hijab and everything.

That's really different, because first of all, in American culture, it's like a joke degree. In the Arab culture, it's like definitely a joke, so it's, like, even worse. I feel I was really inspired by her, because that's cool for her to do something she really loves, like no one else before her has done it at all. So that's one of the things that shows that you can do what you want, and I guess people know her for that too. She's an art teacher, like, Oh, you wear a hijab... it's really cool, and she's a really good artist.

Not only was Khadijah's role model intrinsically driven, but because of her similar heritage, both religious and ethnic, Khadijah was motivated to commit to an autonomous path. Khadijah was following a parallel story as she autonomously committed to persisting into a career in medicine.

### **Complementary or Contrasting: Photo-Elicited Interview**

Khadijah's story-telling interview highlighted the role of autonomy support on the satisfaction of autonomy, as well as how one can use challenging circumstances to satisfy a need for competence. While the photo-elicited interview confirmed the importance of her autonomy and supportive relationship with her mother, the following section examines two aspects of Khadijah's need satisfaction that emerged during photo-elicited interviews that

were absent in her storytelling interviews: faith and family. Khadijah brought two photos to the interview, both of which demonstrated the satisfaction of her need for competence and relatedness.

**Interest and commitment: Perception and satisfaction of autonomy.** While Khadijah, in her storytelling interview, described the impact of her hijab on her need for autonomy, she did not describe the role of her faith in promoting her persistence process. The first photo Khadijah unveiled with pride was a picture of her and her mother. While Khadijah was smiling brightly in the picture, her mother, in contrast, was staring sternly into the camera with her lips closed tightly. Her head was covered by a pastel leopard print hijab. She was a heavier-framed woman who wore a bright yellow floral print top under a long, black, knit sweater. Her daughter's arms were wrapped around her broad shoulder. Khadijah head was covered by a solid pastel Al-Amira hijab. In the following photo-elicited narrative, Khadijah identified the role of her Islamic center in her satisfaction of autonomy and relatedness:

This picture is really meaningful to me because my mom never takes pictures. It's the only picture I have with her. It's me and my mom, it's on the day, Eid, it's the day after Ramadan, so the day after we, like, celebrate the day after the end of the month. We were at a celebration at an Islamic center, and we were dressed up. The Islamic center is another big part of my life, because there's a lot of youth over there, so I became, like, really close to them. So they're, like, one big family to me, too. Whenever I'm feeling down, I go there and listen to, like, religion and stuff, and the lessons; it makes me more motivated 'cause there are people around you that are true motivators. They motivate you because they specifically ask me about

my classes. They always motivate me, like, in life aspects to make sure that I'm the best person I can be and just in life as a whole to be the best person you can be. So it's, like, a meaningful place.

The Islamic center satisfied her need for autonomy as she engaged in lectures and lessons, which reminded her to focus on her authentic self and fulfill her purpose. The center also satisfied her need for relatedness through the family atmosphere and autonomy support it provided. Through this photo-elicited narrative, it became evident that Khadijah's autonomy was strongly supported by her faith but also her family. This was a theme that was not explored in previous storytelling narratives.

**It takes a village: Perception and satisfaction of relatedness.**

Khadijah's second photograph was an image of her and six of her close friends playing in the mud. The girls were dressed in an assortment of muddied gym shorts, pajama pants, shorts, and t-shirts or tank tops, and there are no hijabs to be found. Most of the girls' soiled, olive-toned arms and legs reflected what seemed to be strong sunlight beaming down on them. As Khadijah described the photo, she also highlighted how her relationships satisfied her need for relatedness and motivated her by reminding her of her happiest moments:

This is a picture of my friends. They're really close to me. I wasn't wearing my hijab. I like this picture a lot, first of all, because it's a snapshot, it's not posed at all. It's very genuine, so when I look back on it, I can see all of the emotions. It's real. It's not just you and your friends posing and smiling for a picture. So, like, it evokes a lot of emotion for me whenever I see it. I see it and, like, remember the good times, the fun times, the crazy moments you have with your friends, and it's a

really funny picture in general. They're trying to push me, they're basically pushing me in the mud, my friend's just watching, it's really fun.

The good times are on pictures, always, so just looking back at pictures in general really motivates you because it makes you remember the good times.

'Cause sometimes you forget. 'Cause a picture really is a thousand words. I wouldn't remember how I felt without a picture, like, I wouldn't remember. The feeling that motivates me to keep going is that they're always there for me.

In her photo-elicited interview, Khadijah demonstrated that she was motivated by the unconditional acceptance of her friends and family. This noncoerced relationship built on enjoyment and fun satisfied her need for relatedness but also supported her autonomy. She was able to embrace her authentic self and follow her passion when she was surrounded by autonomy-supportive friends and family. Khadijah did not discuss the importance of her friends in her previous storytelling interview, so this photo-elicited narrative allowed for additional themes to emerge.

## **Analysis**

Khadijah satisfied her need for autonomy, competence, and relatedness in numerous ways and illustrated them through both storytelling and photo-elicited interviews. The satisfaction of autonomy was narrated in her storytelling interviews through her interest, passion, and autonomy support, while her photo-elicited interview illustrated her autonomy as a result of her faith and relationships with friends. Khadijah's competence needs were met through her ability to work hard in the classroom despite the criticism of her peers and family. Finally, her need for relatedness was satisfied through role models and autonomy supportive friendships in both storytelling and photo-elicited interviews. Khadijah's



narratives gave unique insights into her experiences as a Muslim Palestinian and Arab prehealth student. Through her individual narrative case study, we were able to develop themes that could be explored across the case studies of all the participants.

### **Case Study: Keisha**

#### **Description**

Keisha Jones, a 26-year-old African American woman, graduated from a large PWI in the South where she earned her Bachelor of Arts in sociology. She subsequently earned her Bachelor of Science in chemistry from a smaller PWI to improve her GPA in preparation for dental school. While she was not the first in her family to go to college, she was the first to enter a health career. The first person to attend college in her family was her mother, who became a middle-school teacher in the public school system. While Keisha referred to herself as being raised in a single-parent household, she was very close to her step-father and two brothers, one of whom was serving a lifetime sentence in a state penitentiary. Unlike many other study participants, Keisha was torn between two career tracks, business and dentistry. Her plan was to attempt a career in dentistry and should that not work, she would follow her business plan. When asked for information about her business plan, she politely explained that she was not ready to talk about it, but that it would be big.

When she arrived for the interview, Keisha was wearing a large loose, gray sweatshirt and tight, black leggings around her very petite, almost boney, frame. Her hair was tied back in a low, short ponytail, and her face was makeup-free. She smiled as she greeted me; her skin was a golden brown tone, and her eyes were soft. After chatting casually, I gathered consent and began the storytelling interview.

## **Storytelling Interview**

Keisha spoke confidently as she recalled her ability to persist towards a career in dentistry. She quickly scanned over her shortcomings and focused on her future dreams and aspirations. In these narratives, where she focused on her aspirations, she painted a picture of how she satisfied her need for autonomy and competence.

**Interest and commitment and propelled by performance: Perception and satisfaction of autonomy and competence.** In the following narrative, Keisha explored her desire to achieve competence by working hard but also her need for autonomy by engaging in purposeful work. While she did not seem to pursue dentistry out of pure enjoyment, she did describe a need for autonomy and competence to maintain her persistence and achieve her educational goals.

I have cousins and sisters that're kind of, like, "I'm just gonna go get a job and... I just want to pay my bills." There's more to life, guys. There's more to life. They don't have any high aspirations or dreams or goals. I guess I'm dreaming, and they're just trying to maintain. There's the difference. I'd be so happy to say, "Hey, I did that." And I could put my name on something great and say I made an impact, you know, somewhere, and it's not just, you know, monetary. I did something different on my own, independent of everyone else. You're maintaining. I want to be able to say, no, Keisha did this, you know. This was really hard for her, and she overcame that. She accomplished this and then that, and then this. You're not stopping her, there's no stopping her.

Keisha pursued a career in dentistry with the expectation that it could provide her independence and possibly autonomy. She recognized that her hard work would result in accomplishments that would ultimately provide her competence. For Keisha, autonomy

and competence were important needs addressed during the storytelling interview, but she spent most of her storytelling interview discussing the role of relatedness in her educational persistence process.

**It takes a village: Perception and satisfaction of relatedness.** Keisha's perceived a career in dentistry as an opportunity to connect with her future underserved patients in unique ways. This belief was based on her aunt's traumatic experiences receiving dental care. By addressing the lack of cultural competent care in dentistry, like that her aunt experienced, Keisha described how she would satisfy her need for relatedness by becoming a provider of quality care to the underserved.

My aunt is terrified of the dentist. The guy just started working on her teeth with no anesthesia. She said he tried to pull her teeth and I'm, like, are you sure this is real? He's drilling on my teeth, he's yanking at them, and he didn't give me anything to numb the pain. And I'm, like, "I don't really believe you." Why would you go to a dentist in a house first of all, so I'm thinking she maybe tried to go the cheap route... She didn't have any insurance. Now she refuses to go, she won't go to the dentist. And I can see, like, I can see the decay on her teeth. I can see that she needs to go. She [also] refuses to go to the OB-GYN. She just doesn't like the doctor, period. Being a female, an African American, um, it'll be easier to, I guess, communicate or connect with other minority children, maybe. Maybe they'll, you know, trust me, because they see, they see my image more than some, you know, it's not this strange White person that you don't see often coming in and saying, "I'm going to stick you with this needle." It may not be as scary for them.

Keisha seemed to recognize that her aunt's experience was not isolated, but a shared cultural experience of many low-income African Americans. As a result, she described how she could address the medically underserved by pursuing a career in dentistry. Her sense of community responsibility was demonstrated by her satisfaction of the need for relatedness as well as autonomy but also elucidated the complexity of satisfying the need for relatedness through one's effort to serve his or her community. These complexities were revealed in Keisha's photo-elicited interviews, as well.

### **Complementary or Contrasting: Photo-Elicited Interview**

Keisha brought 14 photos and magazine images to her photo-elicited interview. Eight of the 14 photos were of her immediate and extended family. Four of the 14 photos were magazine ads from a style magazine, which included images of high-heeled shoes, dresses, travel ads to Tokyo, and diamond rings. When I asked her about her magazine choices, Keisha explored her desire to achieve independence and perhaps autonomy. "I think being the dentist will allow me, you know, it'll afford me, you know, the opportunity to travel, to experience these different kinds of things, you know, with the financial success and the flexibility, the independence." For the purpose of the current study, the focus will be on two images that provided a colorful narrative of Keisha's persistence process and the satisfaction of her psychological needs. The psychological needs addressed uniquely in the photo-elicited interview were Keisha's competence and relatedness.

**Propelled by performance: Perception and satisfaction of competence.** The first image that Keisha laid on the table was a graduation announcement magnet. The 5x7" card included the graduation ceremony information with the university logo on the left and on the right an outdoor, professional, full-body portrait of Keisha sitting on her knees with

her hands raised above her head. She displayed confident and strong body language as she smiled over her left shoulder and posed on an outdoor balcony overlooking a riverfront. Clasped in between both her hands was her black graduation hat. She was wearing a bright, colorful, patchwork paisley sundress that stopped at her upper thigh and bright yellow, strappy, stiletto sandals. When I ask Keisha to tell me about the photo, she described how this magnet represented the satisfaction of her need for competence:

I chose that picture because I was really happy. I felt so accomplished. I was, like, Oh, it's over. I've done it. I've gotten my degree, no one can tell me anything, I'm out to conquer the world, you know. It's on everybody's fridge. When I go visit friends, when I go visit family, my magnet is still there, and I graduated [5 years ago]. It's so funny, I'll run into people on the street who'll be like, "I still have your magnet on my fridge." And I'm, like, really? It makes me happy, like, you can't forget, you know. I was a part of your life, this was important, you celebrated this great day with me. I remember being so determined and so accomplished and happy. I was, like, "I did it."

Keisha felt an extreme amount of pride related to her ability to persist to graduation. Her hard work and ability to complete university successfully confirmed her competence. This narrative from Keisha's photo-elicited interviews confirmed the previous storytelling narrative. In this case, Keisha's photo-elicited interviews complemented her storytelling interviews.

**It takes a village: Perception and satisfaction of relatedness.** Similar confirmation was observed in Keisha's photo-elicited interview as she described the impact of her brother's dental obstacles. In the photo, Keisha showed a young, Black boy in a

cream and brown plaid shirt. His smile is huge, revealing a mouth full of teeth that are crowded, twisted, and overlapping. When I asked Keisha to explain why she choose this picture to describe her motivation in her persistence process, she responded by talking about the impact of dentistry on her brother's ability to relate to others.

He was really happy growing up, but his smile, you can see how his under... overbite is, um, how severe it is, and he's got braces. But he's happy there. And he struggled with self-esteem issues, because, when his classmates would see him, they would, you know, call him names. They would call him, um, I think, bubble-gump because of his lower lip and how it used to poke out because of his overbite. And he was afraid to smile, because his smile wasn't like everyone else's. He was in high school. He had his mouth wired shut. He couldn't talk. And he said that people used to tease him for that or he went through some kind of deep, postpartum depression from the surgery, and me and my, you know, young mind, I couldn't understand. I was, like, "You get over it." It's motivating, because I've seen the effect that it's had on him, and only in reflection do I begin to, you know, understand it.

Through this photo, Keisha was reminded of what her brother had to overcome and what she might be able to do as a dentist to prevent this experience in others. Her desire to persist was driven by a need for autonomy and relatedness with others, so that she could autonomously help them avoid the shame and embarrassment experienced by her brother. Like the previous example, the findings of this photo-elicited interview confirmed the findings of her storytelling interview.

## **Analysis**

Keisha's storytelling and photo-elicited interviews were confirmatory. Both interviews highlighted her need for competence and relatedness in her educational pursuit. In general, Keisha did not demonstrate in either interview a high need for autonomy, but she did, however, demonstrate a significant need for competence and relatedness. Her persistence process was driven by the obstacles her family had experienced, as well as her desire to provide cultural, competent care. Through both the confirmatory storytelling and photo-elicited interviews, Keisha demonstrated her need for autonomy and relatedness to reflect on her motivation to persist. Towards the end of the photo-elicited interview, she acknowledged that her educational pursuits were motivated predominately by others rather than for herself. "I'm doing this for other people. What am I doing for me?" It was in these concluding comments that she acknowledged that she had suppressed some autonomy in exchange for the satisfaction of relatedness and competence. Through the use of both storytelling and photo-elicited interviews, Keisha was able to reflect more deeply on her own persistence process and acknowledge the intense role of her often externally satisfied relatedness and competence over more internally driven autonomy. While these needs for relatedness and competence might sometimes outweigh her need for autonomy, this might be a brief snapshot into a more complex understanding of successful educational persistence. By compiling the findings of Keisha's narratives with the narratives of the other four participants, the current study uncovers a more thorough picture of how these psychological needs are perceived and satisfied.

## **Case Study: Alejandra**

### **Description**

Alejandra Ramírez was a 22-year-old Venezuelan, female, undergraduate student double majoring in biology and Spanish and was interested in attending dental school. She was the first person in her family to attend college in the United States; however, both of her parents graduated from college in Venezuela. When asked to describe herself, she stated, “I am an immigrant whose parents were immigrants and whose grandparents were immigrants.” Alejandra, the oldest of her three siblings, was passionate about numerous extracurricular activities including drawing, cello, dancing, and a local Latino service organization. However, she was most passionate about her family and heritage. “I realize more that I’m not just Venezuelan. I’m Spanish as well. I’m American”. However, some of her fondest memories were of her life in Venezuela. As a little girl, her grandmother watched her in their three-level home. Alejandra’s grandparents lived on the top; her sisters, parents, and aunts lived in the middle; and the lower level was for storage and the garage. To see her grandparents, she would run upstairs to hear the words, “mi papito.” As soon as she moved to the United States 14 years ago, that stopped.

Her parents both left profitable careers as accountants in Venezuela so that their three girls could have a better life in the United States. Her mother worked at a large oil company. Her responsibilities included interactions with business people from across the country and the world. Today, 12 years after they left Venezuela, she worked as a waitress in a local restaurant. While much was left behind in Venezuela, one tradition remained strong: Family dinners of hallacas while watching Miss Universe. “It’s like a huge tamale. I put the onions, and then my sister put another ingredient, and it will go around the table,



and, at the same time, you listen to music, you're laughing, you're watching Miss Universe." Throughout her life, her family strongly supported her educational pursuits, and they continued to remind her that "Usted puede hacerlo" [You can do it].

When Alejandra arrived for the interview, she was smiling brightly and wore a red-and-green plaid shirt and light, skinny blue jeans. Her shiny, jet black hair was tied in a loose ponytail and looked as though she might have recently stepped out of the shower. Her olive-toned skin showed no blemishes, and she shared the beauty of her home countries with seven Venezuelan Miss Universe winners. In her hands, she carried three photos, one book, a kindle, a notebook, and a stack of papers. I led her to my office to set her things down, review the consent forms, and begin the first of two interviews.

### **Storytelling Interview**

**Interest and commitment: Perception and satisfaction of autonomy.** Alejandra began her storytelling interview by describing her interest in dentistry. She was originally interested in medicine but over the last year focused on a career in dentistry. This shift in her pathway to a career was driven by her interest and illustrated how she satisfied her need for autonomy.

I did switch. I went from medical to dental...I looked in the area and there is not a lot of oral maxillofacial pathologists here. That was also my interest there [*sic*]. The years [of training], they are still the same. It is not a matter of time. It is a matter of interest, and that is where I am focusing my energy. You need a little perspective of art within [dentistry]. That brought my attention, because I used to paint and draw a lot. I thought that was interesting. How do you mix medicine and art?

Through her sometimes broken English, Alejandra illustrated that her focus on dentistry was an intrinsic decision encouraged by her interest. She satisfied her need for autonomy as she pursued a career about which she was passionate. While she was interested in dentistry, she also perceived the professional field as an opportunity to satisfy her need for competence.

**Propelled by performance: Perception and satisfaction of competence.**

Alejandra's need for competence was not a significant narrative in her storytelling interview, but she did allude to it as she described her father's academic expectations. She had integrated her father's definition of competence into her own and expressed introjected regulation. As she integrated her father's definition of competence, she developed a picture of success that included oral maxillo-facial pathology.

[My father] said whatever you did, achieve the highest level. If it is four years of dental school, you know, after that, he would like for me to continue on into a specialty. Then which is the correct thing to do? He said the same thing for medical school. I don't want to have an MD and that is it, don't just do general practice...Don't be, in his words, don't be a mediocre professional.

This passage demonstrated that Alejandra's desire to become a dentist was shaped by her passion and interest, but her aspirations to a dental residency after professional school was shaped by her need for competence. Competence, in her case, was a reflection of her interest but influenced by her need for relatedness with her father. Wanting to please her father, an extrinsic motivator, she assimilated his introjects and met her need for competence and relatedness.

**It takes a village: Perception and satisfaction of relatedness.** This need for relatedness reemerged as Alejandra discussed her desire for work-life balance. After shadowing a Latino dentist, she reflected on the importance of connectedness with family over work. Her need for relatedness was satisfied through her relationships with family.

[A dentist] was talking about his lifestyle, and it sounded like a lot more of what I would want to do with my lifestyle. It is, of course, a passion for me. I don't want to deviate from it. As a woman, I think, the older I get, I am more directed to my family, and I don't want to marry my career. I would like to marry my family. I think that is very important, especially for Latina women. If I get married and then I have children, I want to be able to be successful with my family and with my career at the same time.

As important as a dental career was to Alejandra's need for autonomy and competence, it did not outweigh her need for relatedness. The satisfaction of her need for relatedness with family was more important than satisfying her need for autonomy and for competence in her educational persistence. This was not only evident in her storytelling interview but emerged in her photo-elicited interview, as well.

### **Complementary or Contrasting: Photo-Elicited Interview**

Alejandra's photo-elicited interview highlighted her need for autonomy, competence, and relatedness. Through the use of books, notebooks, and photography, Alejandra explored how she used her psychological need to persist. In this case, she explored her need for autonomy.

**Interest and commitment: Perception and satisfaction of autonomy.** Alejandra presented a blue, white, and green patterned book of quotes and motivational statements. It was a 10x10 book, which she opened to a page in which the words “EMBRACE YOUR DREAMS WITH PASSION!” were written. As she reflected on the use of motivational statements in her life, she connected with her spiritual and autonomous self:

I have [these motivational phrases] all over my room, and I have one in front of me when I wake up. It says, “I’m there when you least expect it.” Referring to God. Um, sometimes I’ll feel like, “Where are you?” And then on one of my mirrors I have written with a Sharpie, not Sharpie, um, dry eraser that says, “Today I will be happy.”

These statements of faith and autonomy described Alejandra’s need for autonomy, which she satisfied with meditation. This satisfaction of her autonomy was unique to her photo-elicited interview, as it was not explored in her storytelling interview. The inclusion of photo-elicited interviewing allowed for the co-construction of additional narratives.

**Propelled by performance: Perception and satisfaction of competence.**

Similarly, when Alejandra pulled out a notebook of her weekly schedule, she demonstrated how she satisfied her need for competence. Behind a red binder clip, Alejandra had attached an extensive study chart for the week. It was a rather complex, color-coded table developed in Excel. On the left side of the paper were the date and times of the week, and at the top were her courses listed in a blend of English and Spanish, including “Spanish Gramática, Spanish Literatura, Spanish for Comercio, Estadística, Bioquímica, Microbiología, Física, Music Appreciación”. Through this example of the satisfaction of autonomy, Alejandra addressed how she achieved and satisfied her need for competence:

You're probably gonna laugh at this one... I make a study schedule. I put the free times that I have during the week, and, based on whatever comes up next, I have the different classes and with priorities. So let's say, Mondays 9-11 a.m., priority one was to study for commerce. And then what followed next was, what's it called, microbiology at night. And in the afternoon I would do music or statistics... This is the study schedule, and this is my semester. My way of looking at it with colors and... so I block out time. I try to manage time as much as possible. Notice I have time here to study, work if I have to, for breakfast, work or whatnot, and then when it's a smiley face, that's when I would have... Either hang out with my boyfriend or...or, Sunday is family. Sunday is family. When I say family is my boyfriend and my parents and everybody together.

The use of her study schedule to satisfy competence highlighted her ability to negotiate both Spanish and English simultaneously as an English language learner (ELL) and her ability to define successful academic strategies that worked for her. Through a structured schedule, Alejandra demonstrated how she overcame the challenges of an ELL to satisfy her need for competence, which was unique to the photo-elicited interview. However, she also confirmed her storytelling interview, as she highlighted the priority of family, and her need for relatedness, as more important, and possibly more enjoyable, than her educational pursuits.

**It takes a village: Perception and satisfaction of relatedness.** Alejandra's passion for family and connectedness was confirmed in her photo-elicited interview, as she presented a picture of herself, her sisters, friends, and her grandmother. All of the young women had olive-toned skin and dark hair and bright smiles. Her grandmother stood in the

middle of the semicircle wearing a bright, yellow turtleneck and a headful of short, cropped, gray hair. In the background, a Christmas wreath hung on an open, white door.

As Alejandra described the photo, she smiled reflectively:

It's bonds. It's family. It's warmth. It's having the Christmas in the background. It's happiness. It's peace. It's joy. It's celebrating. And one of the things I'm celebrating is that [mi abuela] is still alive and she's with us. The clothes we're wearing. It's nothing special, you know? It's how we are. As a matter of fact, we call it [Ropa Descuidada] day. And what that means is, we pick a day of the week to where all the young of us, right, we dressed up with just the t-shirt and sweatpants...we actually, text each other, like, "Okay, today is [Ropa Descuidada] day." So everybody knows that you can't get dressed nicely so that you don't make anybody else feel bad. So if there's a day where you, let's say, you just woke up on the other side of the bed and you don't feel like getting ready or whatnot, we all wake up like that for it [*sic*].

Through Alejandra's reflection on her favorite family moments, she illustrated how she satisfied her need for relatedness. From this example, she also highlighted that her family provided space for her to display her autonomous self. Her family's unconditional love, joy, and bonds provided the necessary support for her to satisfy her need for competence and autonomy to persist into dentistry. In this portion of the photo-elicited interview, Alejandra confirmed previous findings as she reiterated the importance of family in her ability to persist, as they supported her ability to be autonomous and competent.

## **Analysis**

Through the use of storytelling and photo-elicited interviews, Alejandra provided a unique insight into the ways in which she satisfied her need for autonomy, competence, and relatedness as she persisted. Her photo-elicited interviews confirmed the findings of the storytelling interviews, but also revealed additional themes such as the important role of relatedness to undergird the needs for autonomy and competence, as well as the importance of identifying successful academic strategies to satisfy her need for competence.

Alejandra achieved autonomy through her ability to connect her persistence process with her passion, interests, and faith. She demonstrated her ability to satisfy her need for competence by developing a rigorous study schedule and navigating two languages simultaneously. Finally, she satisfied her need for relatedness primarily through her relationships with family. Through her own reflections, Alejandra provided a snapshot into her experiences as a Venezuelan American woman pursuing a career in dentistry by satisfying her psychological needs. By comparing and contrasting Alejandra's individual narratives with the narratives of the other four participants, the current study was able to develop a more complete picture of how URM students persisted to health careers.

## **Thematic Analysis**

Upon examining all 10 qualitative interviews for the perception and satisfaction of autonomy, competence, and relatedness, the following eight themes emerged, in no particular order: (a) Say it loud: I'm \_\_\_\_ and I'm proud; (b) Faith is; (c) It's a hard knock life; (d) Conjunction junction; (e) Together again; (f) Don't let me down; (g) Anything you can do, I can do; and h) I'll be there. These

themes highlighted the way in which the study participants used their psychological needs to support educational persistence. Table 5 summarizes the code counts, themes, and networks as they materialized. To further explain these themes, this chapter explores each theme in more depth.

### **Interest and Commitment: Perception and Satisfaction of Autonomy**

Participants approached the satisfaction of their need for autonomy in educational persistence by acknowledging their passions, but most of the participants focused on how their identity merged with their educational pursuits. Only one of the student participants alluded to a passion for the science as a motivator. David described how he chose to learn about the science of color blindness for a class project, because it interested him.

It was, like, my sophomore year of high school... honors biology. I had to write a research paper in my English class, and I did it on color blindness. I learned about it and how the genetic trait was passed on by my mother, but she is not color blind. It is the recessive trait passed on by the maternal effect. It's... so you know, I learned more about it.

While David was passionate about the science of medicine, he later revealed that his passion was also personal. David was color blind, so his passion for the science, in this scenario, was driven by his physical limitations and identity. This theme of passion for the health sciences connected with identity was highlighted in the stories of all the participants.

**Say It Loud: I'm \_\_\_\_\_ and I'm Proud.** The participants' stories of educational persistence were often shaped by their racial and ethnic identities. Stories of pride and stories of oppression molded participants' perception of their persistence process. This section explores three participants' stories of how their racial and ethnic identities informed



their educational persistence process. The first of these was Khadijah who recognized that her identity as a Muslim woman allowed her to demonstrate her educational endurance.

I'm a Muslim woman. It is a big thing because they see... so many people think Muslim [women] are oppressed. So the fact that I'm a Muslim woman makes people, like, Oh, look, she's going out of the boundaries and not the typical role that usually people think of when they think of a woman in Islam... I have something that people will be interested in... When you have obstacles [like religious and ethnic stereotypes], it shows something about someone and their potential and their endurance and how they want, basically, like, their passion for something

Khadijah was fully aware of being stereotyped because of her religious identity. However, she refused to let stereotypes hinder her passion. In the following narrative, Khadijah's illustrated how her religious identity as a Muslim women shaped her interactions inside the classroom, as well.

A lot of people say, like, because of the hijab [most Muslim women] are very quiet...so they say, Oh, you're not like those. And they'll be surprised when I have an opinion, like, "oh, you talk"; because whenever I have discussion class, I'm always the one speaking in class. I'm always the one raising my hand, and they just get surprised and they're, like, "She's talking to all these people."

Khadijah recognized that one of her biggest obstacles in her educational pursuits was overcoming the xenophobia she experienced as a result of her ethnic and religious identity. Negative stereotypes not only impacted Khadijah's persistence but were depicted in Alejandra's narratives, as well.

Alejandra described how her racial identity contributed to her educational persistence process and continued to shape her behavior. She recognized that she wanted to be identified as a Venezuelan physician, because she would be respected and admired by Venezuelan family and friends, but, in America, it was different. In America, she might not be recognized as Venezuelan and would most likely be confused with other Latinos:

It is horrible to say this, but in Hispanic countries, a lot of times, the careers that do become so noticeable are lawyer, doctor. Here, in the US, people probably think, with me being Hispanic, that I would finish high school, get married, and have kids. This is horrible because my boyfriend is Mexican. [Americans] would not know the difference... that is a huge stereotype... we all speak Spanish. We don't all come from the same country. There is a lot of ignorance that I had to deal with.

In addition to feeling that her Venezuelan identity was not embraced and acknowledged, Alejandra recalled how the very identity that others ignored or incorrectly stereotyped motivated her to achieve. "It's making sure you achieve your goal using motivations you have in your life that you haven't realized you have, like your family, like your heritage." Alejandra seemed to choose behaviors that promoted her racial and ethnic identity despite the associated negative stereotypes. In contrast, other participants perceived that their racial identity was negatively stereotyped and desired to separate themselves from common racial/ethnic stereotypes by denying that the stereotypes had merit. David was an example of a participant who refused to allow stereotypes of race and ethnicity to shape his beliefs about his abilities and competence.

I'm not a person that believes if someone tells me no, it's because I'm Black or because I am a Black male. And they got it because they are White. No, no, no... now if I see things that perceive that, then you know. I'm not going to play the race card all willy nilly.

In this case, David recognized his autonomy as a Black male who was in control of his own behavior, and his behavior was not filtered through a lens of racial and ethnic inequality. When compared to his previous statements of having two strikes against him "being Black and male," this illustrated the fluid nature of racial and ethnic identity as a motivator. David was able to use his racial identity as a source of motivation to work and meet his need for competence. However, his racial and ethnic identity were unable to satisfy his need for autonomy and purpose.

**Faith is...** The second theme that emerged throughout the narratives of all the participants was the role that faith and spirituality played in their educational persistence process by satisfying the need for autonomy. Two participants, Khadijah and David, told the most colorful stories about the role of spirituality in their persistence process; these are summarized in this chapter. Khadijah recognized that her religious practices shaped her interactions with those around her both in the classroom and outside the classroom.

Because Khadijah wore a hijab, her spiritual beliefs shaped her daily interactions.

I have a hijab on; I feel people notice me more, so I guess, like, people notice you, and they kind of motivate you because they're, like, Oh, you're different, so let me talk to you. So it makes me more motivated to actually be more social and talk to people. When I talk to people, I think, like, I'm, like, kind of representing Islam. Because Sunni jilbab is in the media most of the time, it makes me want to go talk

to people, and then I guess they make connections, and the fact that I, like, I am different. It makes people notice you more than if you're just like the [everyone else], like when I have an application, I'm going to stand out compared to everyone else, because I went through so much compared to everyone else and I, like, am different.

Khadijah chose to believe that faith stereotyped and shaped her interactions and worked in her favor as she persisted, because it pushed her to intentionally engage with people. Her purposeful interactions with her peers were an effort to be a living example of her faith. While Khadijah used her faith as a catalyst for autonomous educational interactions, David described how he leaned on his spiritual beliefs in times of educational challenge. After describing his frustration with not getting the scores he desired on his practice MCAT exam, David described an unwavering reliance on faith:

All I need to do, is I just need to believe in myself and believe in God and me. Just do what I can do and let God do the rest... believe that God is going to do something that is miraculous on my behalf. And also just push forward, faith is things not looking like what you want them to look like but being able to see things without seeing it in the natural and in the tangible... faith is the absence of things not seen and of things hoped for.

David demonstrated a reliance on his faith to persist despite how he performed academically. As he reflected on his challenges, he recognizes that he saw academic opportunities opening such as post-baccalaureate programs that would provide him opportunities to strengthen his application. These opportunities were confirmation for David that his faith was working.

It is all because of God. It's not because of me. It can't be just me, you know.

You know, having faith that all of this is not going to be in vain. I am not a person who believes it is all me who can do it, so I have to open myself up to the possibilities of... of allowing that to fill me up again, to fill me up with something, to endow me with something that I can do, which is with the skills and materials I need to get to medical school.

David relied on faith to overcome academic challenges while Khadijah used her faith to bring purpose, and she used it as a stepping stone to academic success. Both students demonstrated the unique role religious practice and spirituality played in satisfying their need for autonomy in the educational persistence process.

The students in the current study relied on faith and spirituality to persist. As I listed to their narratives of faith, I memoed to examine my experiences, assumptions, feelings, and values as they related to my own persistence process. An example of a memo about faith and persistence is below.

I felt a connection to David as he describes his persistence process as “faith in action.” My desire to enter the medical field as an undergraduate was guided in part by my desire to do what I was “called” to do. David genuinely believes that he is following a calling and his purpose as I did. However, I now know my persistence process was a fluid and complex process which included the perception and satisfaction of psychological needs. In this case, David highlights the satisfaction of his need for autonomy.

David's interview caused me to reflect and recognize my emotional connection to faith driven persistence. A part of the African American church experience is “call

and response.” An elder or leader may say “God is good all the time...” and in response, the members of the church may answer back in mass by saying, “...and all the time, God is good.” To a leader who says, “I feel the anointing.” The church members may respond with “that’s all right!” or “well?” or even shout “Amen”! As I listened to David, reciting and almost meditating on scripture, I felt an urge to engage in call and response. His *call* was the recitation of scripture and my *response* was a confirmatory and celebratory “Yes”! David’s narrative stirred my spirit and I connected with him in a unique way because of our shared spiritual belief system. While one would think this is a phenomenon, of the African American Christian church, I shared a similar experience with Khadijah who is Muslim.

Four years ago, while attending a family wedding, I was asked to wear a hajib. When I entered the mosque for the ceremony, I had ignorantly wrapped a scarf around my head like a towel covering freshly showered hair. While my Muslim family embraced me nonetheless, I was very aware of my positive and negative self-perceptions. I reflect on this because this experience allowed me to relate to Khadijah’s statement that “people notice you more” while wearing a hajib. I felt the strong and often sharp gaze of strangers passing by as I stood outside the mosque. This powerful yet short experience allowed me to have some shared assumptions about the daily experience Muslim American women who wear hajibs. While I was able to take off the hajib at the end of the wedding, Khadijah chooses, autonomously, to wear her hajib as an outward statement of her faith, a living testimony.

Through my own personal memoing, I was able to identify how my faith experiences, shaped my thoughts and responses to the participants narratives. Through the students' stories of faith in action, I was able to identify their autonomous need satisfaction. While the faithful pursuit of a career met the study participants' needs for autonomy, the study participants still experienced significant challenges. The third theme, It's a hard knock life, arose out of the narratives of the participants as they faced economic challenges.

**It's a Hard Knock Life.** This section explores Shelbra's, Alejandra's, Keisha's, and David's narratives as they described the role that financial challenge played in their persistence process and how they responded. Each participant overcame financial barriers and used them as motivation by recognizing that their autonomous commitment and interest in persisting were greater than the barrier itself. Shelbra was the first of the participants who described her biggest challenge pursuing a prehealth career as a financial challenge.

I wanted to, um... go to med school and pursue that full time. And it's impossible to do that, you know, while in the military... as I became closer to finishing my undergrad degree, it was getting more difficult, because some of the classes weren't even offered at the time I need them to be. In order for me to get out of the military, there were certain things like... I wouldn't have a job anymore, but I still have bills. So, how are my bills going to get paid? And how was I going to live? I was, like, you know what, literally, F it. I don't care. I'm going.

Shelbra had to choose between staying in the military, where she could easily pay her bills, and leaving the military, not knowing how her bills would get paid. She autonomously

chose the latter. Like Shelbra, Keisha described her financial limitations as a child and the impact finances had on her educational persistence:

We were poor. I was wearing somebody's hand-me-downs. Like, my mom would say, I had to wear my uncle's shirt or something. I want to be able to buy myself nice clothes, nice shoes, to look and feel nice. I personally know that you look better, I mean, you, you behave, your attitude is better when you feel like you look better. So that's important to me. Like, I don't wanna struggle.... I grew up struggling, not being able to have the nicest clothes, the nicest shoes, the pond, and the Range Rovers, and all those things, you know, the house on the hill, the condo downtown...I want the same things that most people want as far as status and success goes; I want the same things, and it surprised me that I was so stereotypically defining success.

However, despite financial imitations, Keisha recognized that her educational persistence could provide her access to the finer things in life. Keisha described her meager means as a child as motivation to achieve a high paying job such as doctor, to gain the items that she could not afford as a child. Success for Keisha was being able to afford the material things. While not describing truly autonomous behavior, Keisha highlighted that external motivators and introjected regulation were useful in persistence over the short run, particularly in times of challenge. This was in stark contrast to Alejandra's response. Alejandra chose to use her lack of material things as a teaching moment for how she could engage in the future:

Perhaps I didn't have all the presents in the world. Perhaps I didn't have the best clothes. But [my parents] gave me more responsibility. They gave me more books.



And perhaps I was mad I could not go to Christmas in Venezuela to be with my grandparents, but today I am thankful. So they've given me less, [but] they gave me more.

Alejandra recognized that her lack of financial freedom allowed her to appreciate her education, be thankful, and persist. Alejandra recounted her financial limitations but was able to recognize value in her rough circumstances. In contrast to appreciating financial limitations, David's lack of means to afford material things opened doors to other opportunities in college:

College, um... my parents supported me, but they didn't have to do a lot. I had a full scholarship, and I had an outside scholarship; so, everything was paid for. My, you know, everything...including my apartment. So they gave me money, you know, still I had other money...as far as living and other things. They didn't have to do a lot. I made sure of that. I didn't want them to do a lot, but they helped out anyways, you know. And, um...they uh...they support me in that. They bought me a car my sophomore year. They paid for it in full. They paid for it in cash, because they didn't want me to have any kind of debt. So I didn't have any car notes. I didn't have that type of struggle, mine was academic.

If I don't get the same amount of help and teaching, then I'm forced to do it on my own. [College students] that receive the most help are the ones that have the most money. It's hard to get a private tutor when you can't pay a \$100 an hour, you know, to some people who may require that. And so, it becomes harder to get, you know, "grade A help"...when you hear people say, Hey, I had a private tutor.

David recognized that finances could hinder one's academic progress even with significant amounts of financial aid. This financial support allowed him to live without the burden of debt but did not leave him without struggle. His biggest feat, like many of the other study participants, was overcoming academic challenges by identifying successful strategies without the help of expensive tutors. David highlighted that his autonomy was undermined by financial barriers as he demonstrated a high need for competence (i.e., academic success) in order to recover. The next theme, conjunction junction, explores how the current study participants persisted despite academic challenge and achieved competence.

### **Propelled by Academic Performance: Perception and Satisfaction of Competence**

The section discusses four participants' narratives as they discussed how their academic performance motivated them to persist. As part of their narratives, each participant acknowledged how they identified and used successful academic strategies. Keisha described her successful academic experiences as surprising and fodder for her future academic experiences.

**Conjunction junction.** Keisha's strategy for success was to acknowledge her academic insecurities:

I'm very happy with those grades. It's just shocking to achieve those kinds of marks...Am I, do I know this stuff, or, is it just easy. It's just... I don't know how to feel about it.

Keisha was surprised by her competence in the classroom as a result of her academic insecurities. Similar to Keisha, Khadijah expressed concern with academic insecurities that were eased when she identified successful academic strategies by receiving advice:

It's kind of like scary, too, because it makes you, like, "What if I'm not good enough? What if I just wasted my time doing all this?" At the end, when I just got my act together my sister was there for me because she took the class and she said, "Oh, just go to the teacher; he won't make you feel stupid, he actually helps." On the final exam, I got, like, one of the highest grades in the class over everyone else and the final is supposed to be super difficult. So I was, like, I could do it all along, I have the potential, but I kind of stopped myself because I was scared.

Khadijah depended on the advice of her sister to engage with faculty but doing so garnered her successful performance in the class. She acknowledged that her issue was not really academic competence but soothing her academic insecurities. Alejandra addressed her insecurities by celebrating her academic achievements to date, which included graduating college with dual degrees but also setting her sights on higher degree achievement:

I've done it. I've gotten my degree; no one can tell me anything; I'm out to conquer the world, you know. I like accomplishing things and achieving things. Like, I've always wanted more. I don't think that this will be so much as proving that I'm different but proving that...I belong here too. Don't show the door on me, because I can do everything you can do.

Alejandra's successful degree attainment allowed her to acknowledge her capabilities and competence. Similarly, David recognized that he was struggling in his preparation for the MCAT exam and had a high need for competence. He was tempted to change careers but persisted anyway by acknowledging insecurity and identifying

successful academic strategies. Success on the MCAT would mean approaching the test differently and incorporating academic advice that would cause discomfort:

When I took the MCAT, I really had to study. Everything was different. I didn't have the type of help that I thought that I, you know, may need or have, because it was all on me, essentially. So I tried to do things like a test prep program, and I thought I was doing things differently. I was learning more than I ever learned before. I was understanding things better. I could explain to other people, and I still failed. I am having to overcome it. And I was, like, wait a minute, I don't....so my...my stamina wavered, and so my...my... confidence wavered a little bit. "David, stop trying to study for content....just practice." I said, No, no, no, no. And then I said...ok. Let me stop fighting everybody and just practice, and I began to learn more that way, you know...midway through, you know, rather than do it initially. And that was a lot of my problem. I didn't need to know everything and study for content, but in the MCAT, it is not just content. It is strategy and it's so much other stuff.

To satisfy his need for competence, David had to recognize and implement different academic approaches to mastering material. Once he identified successful strategies, his competence was restored. In all of these participant narratives, competence was associated with identifying successful academic strategies and approaches to learning, but competence was not only satisfied in the classroom but also by students' participation in minority support programming and conferences.

**Together again: Minority programming and conferences.** Two participants, Alejandra and David, spoke in great detail about the impact of programming for minority students' motivation to persist. Most commonly, these programs and conferences satisfied students' needs for competence. For Alejandra, programming for minority students provided resources for success, as well as opportunities to demonstrate competence through leadership:

The Excel and Lead Program were like parents, like cushions in college. They helped you, they helped me, I mean, in the sense of they provided you with the resources; all you had to do is act. And I'm not saying that I like everything handed out to me, but it was more of, I really, really had information. We had a programmer conference called La Sanitas, and I was in charge of putting that together. It was a group of God knows how many Hispanic students in the city: high school, college, all levels. And they all said the same thing: "Counselors do not provide us much help. My counselor put me down. My counselor is not helping me." The purpose of the conference was to provide that information that your counselor is not.

Alejandra satisfied her need for competence by using the Excel and Lead program as a resource but also an opportunity to become a resource to others in her community. Her ability to become a resource built her confidence and competence. Likewise, David confirmed the power of programming for minority students to build one's need for competence:

I was privy to go to this biomedical symposium for minorities in Atlanta. And there were people from all over the world. And I got to tour the college. I got to

meet people, and they were inspiring. I met the, uh...16th surgeon general of the United States, he inspired us. He, sort of like, lit the torch and tried to pass it to us...telling us, this is what you need to look for and see, this is why it's important to be a doctor in the field of medicine and to inspire African Americans, Hispanics, Pacific Islanders, etc. I got to meet Jesse Jackson, Jr. And I got to go to think tank with them, hear sitting workshops, hear them talk about their experiences. It wasn't an easy road for them, you know. They had to apply to medical school twice. They failed some classes. They didn't know how to do certain things until they got their ah-ha moments. They didn't know certain things...the factors were not always there for them. And that was just inspirational in itself. These people inspired me, directly and indirectly, from listening to their stories, from seeing what they have overcome.

Hearing from role models about having low competence and building it up again particularly in the face of challenge was significant to David as he also experienced academic challenge and was experiencing low competence. Minority programming and conference provided opportunities for study participants to see how others bounced back from challenge. Students related to these experiences and found them motivational.

### **It Takes a Village: Perceptions and Satisfaction of Relatedness**

Autonomy, competence, and relatedness are all satisfied in supportive academic and social experiences. In the face of challenge, however, students, in the current study, focused on relatedness as playing an essential role in their successful experiences. Relatedness was the most frequently coded theme in the current study (Table 5).

Participants described two themes as they satisfied the need for relatedness: (a) don't let me down, and (b) anything you can do, I can do.

**Don't let me down.** Keisha recounted her parents' supportive reaction when she shared of her early interest in pursuing a medical degree. These support reactions from family become motivation for future engagement.

"What! You want to be a doctor? That's great, you know? We don't have a doctor in our family. Second person to go to college, though. Not a lot of professionals but... um... What kind of doctor do you want to be?"... it was more my family pressuring me to, like, focus, like, what are you going to do? Which kind of doctor are you going to be? I was like, I don't know, I don't know, I don't know.

Keisha recognized her family's interest in her becoming a doctor before her career interests were fully developed. As she continued in her persistence process, she was able to transform these external prompts into internal prompts. Similar expressions of enthusiastic, yet loving, family support occurred with Shelbra in her interview.

They motivate me to be great, you know...if I don't end up being great, I know they will love me anyway and support whatever I decide to do. And you know, I...at the end of the day, I would never want to let them down.

Shelbra's desire to go into medicine was strongly encouraged by parents' expectations. Yet, she recognized that her family's love was not contingent on her success or failure. Similarly, the sentiment of meeting parental introjects was echoed in Khadijah's interview as she described her desire to please her mother; however, Khadijah highlighted some parental disapproval if she did not achieve her career goals.

I get more disappointed because the fact that she sacrificed so much, I feel like the least that I can do is at least be successful and fulfill all my dreams because that's what she wants me to do. And I feel bad sometimes because it's, like, if I don't do as well, then maybe she thinks I'm failing, I'm not going to actually succeed.

Because she did so much and at the end I fail and all that she sacrificed basically is gone to waste.

For Khadijah, familial disapproval and disappointment temporarily motivated her to persist. Her persistence was supported by her need for relatedness with family, specifically her mother. Khadijah relayed that, if she stopped persisting, it might impair her relationship with her mother. Khadijah's narrative suggested that there might be some external pressure or control that was temporarily sustaining her motivation during difficult times. However, these pressures were not stronger than her intrinsic desire to achieve. Like Khadijah, all of the participants highlighted that meeting the expectations of family and avoiding disappointment were essential to achieving success and persisting.

**Anything you can do, I can do.** Relationship with family set expectations for Khadijah's and Keisha's academic success and met their need for relatedness. Complementing the role of family in satisfying the need for relatedness, role models also satisfied students' needs for relatedness. Keisha recognized the role of her personal dentist in her educational persistence process as they discussed flexible work-life balance.

I discussed it with my dentist and he was, like, Yeah, you should definitely be a dentist because I love my job, you know? I'm, like, yes! Ok. He's not stressed out like most doctors are, he has, you know, flexible hours, I'm, like, yes! This just might be for me.



In Keisha's case, role models confirmed her persistence process by reiterating the importance of relationships with family outside of work. For Keisha, role models provided a crystal ball in which to see what life might be like if she achieved her goals. Keisha approved of the prediction as she desired relationships with those at work and at home. While David was not as concerned about work-life balance, he appreciated role models, as they provided encouragement when he was experiencing challenge. In his case, if his role models overcame obstacles, he could overcome his obstacles, as well. The stronger his relationship with the role model, the more likely the outcome would be similar.

I began to talk to other people who looked like me and talked like me or who are actually physicians now. They are mentors of mine, African American physicians. And they told me their struggles. I didn't know, until recently, of how they took the MCAT three times. And they end up doing a postbac program. And one of the physicians, in particular, is a very established doctor now, and he does really well. I would not have known if he hadn't told me his story or his testimony. It's an inspiration to know that there are people who look like me, talk like me, and have had similar struggles as I have...as I am having rather. And I realized, you know, that it wasn't over. It wasn't the end. And so I can sort of figure out things.

David's connection with role models satisfied his need for relatedness and allowed him to use their experiences as motivation to overcome challenges. Through these narratives, one can visualize how the need for relatedness is satisfied through role models and family.

**I'll be there.** The eighth theme (Table 5) emerging from the narrative interview illustrated how students perceived and satisfied their need for relatedness was I'll be there. All of the participants in the current study described being motivated to pursue their careers in healthcare as a responsibility to their families and extended communities. To illustrate this significance of community responsibility, this section focuses on three participant narratives and how they supported relatedness. The first of these narratives was Keisha's. She acknowledged that her pursuit of a career in dentistry was motivated by her responsibility to her family despite being told not to worry about community responsibility.

If anything, people are saying, "You know, you're not responsible for your siblings. You don't have to make up for things that they're doing or didn't do. You can't save them. Their burdens aren't your burdens. Just take care of you." And I'm, like, I can't leave these people. I can't leave them. I have to bring them with me...I'm not so responsible that I feel like I have to carry everyone, but I'd love to, you know, just open the door [of opportunity], come take a peek. Let me show you, even if all you do is look at my pictures, you know. Maybe you'll, you know, dream hard enough one day, you'll do it for yourself. I don't know. I just want more for me, I want more for everybody else, you know. I don't know...I don't think it's revolutionary. I think it's responsible. I think it's expected. I think it's required...like what purpose did you serve if you, you know, didn't rise above the level, you know, before you, or, you sunk further or lower than where you started. It's like you didn't help anybody, you didn't help yourself. Why are you here?

Keisha described her educational persistence process as a means to achieve her purpose to help her family. Her autonomous and purposeful pursuit of a career driven by

family responsibility was echoed by other participants. Alejandra extended this sense of responsibility, which satisfied her need for relatedness, to not only include giving back to family after she achieved, but the importance of recognizing sacrifices that were made by others throughout the educational persistence process.

Hispanic relationships, it's always a "we." It's never an "I," or a "you." It's a "we."

"This is what you want to do. I don't mind moving over there so that you finish. I will not let you go by yourself." Because you don't go by yourself anywhere. My mother dropped all of that, in Spanish it's called, *grandeza*, huge fulfillments, her accomplishments of her career for me, for my sisters...She dropped everything.

She's learning a different language. She's waiting tables. For me, that's a responsibility.

Alejandra recognized that her persistence process was a result of her family's support and sacrifice. Therefore, she was motivated to persist, knowing that her persistence was purposeful. David echoed these sentiments as he described a social responsibility to enter the health professions:

We have charge on us to essentially take the banner that [others] have set and move forward. They pretty much demanded we do that as minorities and set an example for the people. We go back and we reach back with other people because we have been helped. It is important to find a solution for [the low number of] minorities in medicine.

This sense of responsibility to reach back and help intimate and extended communities was demonstrated by all three of these participants as they persisted to health careers.

Purposeful pursuit of a career fed the need for autonomy and relatedness in all of the participants in this study.

In summary, it was through the narratives of the participants in this study that one was able to assess how the psychological needs of autonomy, competence, and relatedness were satisfied when persisting to a health career. Students in the current study described how their need for autonomy was satisfied through their associations with racial and ethnic identity, faith, and financial responsibility. The need for competence was satisfied in the participants through their ability to overcome economic challenge, successful academic performance, and their participation in programming for minorities. Finally, the need for relatedness was satisfied through family encouragement or disappointment, participants' sense of community responsibility, as well as participants' relationships with role models. These findings provided a more complete picture of how students used psychological needs to persist to health careers and have significant implications for future interventions to promote educational persistence in URM prehealth students. These implications are discussed in Chapter 5.

## **Chapter 5: Discussion**

**Until the lion has his or her own storyteller,  
the hunter will always have the best part of the story.**

**--Ewe-mina Proverb**

The current study includes the case studies of five participants and provides a glimpse into how these students used the satisfaction of their psychological needs to persist into health careers. In the previous chapter, participants' storytelling and photo-elicited interviews were used to develop themes and counter-stories about URM students' educational persistence. In this chapter, the themes of the previous chapter are combined with the researcher's memos and the findings of previous narratives of URM student persistence to develop a constructivist meta-analysis. The chapter is divided into three sections: (a) the findings and interpretations of the meta-analysis not reported by other literature; (b) the theoretical, methodological, and educational implications of the findings; and (c) recommendations for future research.

### **Findings and Interpretations of Meta-Analysis**

The purpose of the current study was to explore how satisfaction of autonomy, competence, and relatedness led to greater educational persistence in URM students. As a result, the study was guided by three research questions:

1. What psychological needs are satisfied when URM students participate in supportive academic and social experiences?
2. How does need satisfaction support URM students' abilities to persist in the face of challenge?

3. To what extent are the results of previous research and the current study's in-depth interviews (i.e., memory and photo-elicited) contradictory or complementary?

The findings from this study contribute to what we know about URM students' persistence. Eight themes emerged and are incorporated into the following meta-analysis. The eight themes include: (a) Say it loud: I'm \_\_\_\_ and I'm proud; (b) Faith is; (c) It's a hard knock life; (d) Conjunction junction; (e) Together again; (f) Don't let me down; (g) Anything you can do, I can do; and (h) I'll be there. To explore these findings further, meta-analysis was used.

To provide a comprehensive picture of findings across the present study and previous research literature, the current study used meta-analysis to develop new findings that are more substantive than those resulting from individual investigations (Timulak, 2009). Due to a lack of studies on the topic of URM educational persistence, all studies and narratives available were used for meta-analysis including current URM physicians' autobiographical text (Table 6). The selection of eight additional studies were selected based on their focus on URM educational persistence and one of the following: use of SDT as a motivational framework and/or STEM degree achievement.

Table 6

*Characteristics of the Narratives included in the Meta-Analysis*

Study Characteristics					Participant Characteristics		
Author/Year of Publication	Objective	Method		Main Findings	Participants (W=women, M=men) (Af=African American, L=Latina Ar=Arabic)		
		Data Collection	Data Analysis		N	Gender	Race
Tucker & Winsor (2012) and unpublished raw data	To examine how black students use motivation to persist	Semi-structured interviews	Constructivist Grounded Theory	The current model of SDT framework does not fully incorporate the experience of URM students. A multidimensional model is proposed.	14	3M/11F	10Af, 2L, 2Ar
Quinones-Hinojosa & Rivas (2011)	To demonstrate persistence and hard work in the life of a Latino migrant worker turned neurosurgeon.	Autobiographical/ Photographical	n/a	n/a	1	1M	1L
White & Chanoff (2012)	To demonstrate how stereotypes impact doctor-patient interaction.	Semi-structured interviews/ Autobiographical	n/a	n/a	1	1M	1Af
Davis, Jenkins, & Hunt (2003)	To examine the journey of three African American men from inner city Newark to medical school.	Autobiographical	n/a	n/a	3	3M	3Af
Barr, Gonazalez, & Wanat (2008)	To determine the cause of decreased intrinsic in URM students	Freshman Survey/ Follow up interviews	Regression and themes by consensus	Loss of interest is associated with chemistry courses as well as advising.	68	30/38	24URM/ 44Non-URM

(table continues)

Table 6 (continued)

Study Characteristics					Participant Characteristics		
Author/Year of Publication	Objective	Method		Main Findings	Participants (W=women, M=men) (Af=African American, L=Latina, Ar=Arabic)		
		Data Collection	Data Analysis		N	Gender	Race
Hwang, Echols, Vrongistinos (2002)	To examine the motivation modes of high achieving African American college students	Semi-structured interviews	Indigenous codes/themes by consensus	High achieving African American students persist in their educational goals using a combination of intrinsic and extrinsic motivation.	60	23M/37F	60Af
Griffin (2006)	To examine how current motivational frameworks explain African American students motivation	Semi-structured interviews	Pattern matching	A multidimensional framework is need to explain the complex use of intrinsic and extrinsic motivation to achieve.	9	3M/6F	9Af
Garcia & Hurtado (2011)	To test if Nora's (2003) Model of Student Engagement explains the persistence of Latina students who aspire to pursue STEM degrees.	Two national surveys of college students	Binary logistic regression	Academic and social experiences, sense of belonging, and standardized exam scores increase the likelihood of Latina persistence.	810	300M/510F	810L
Muñoz and Maldonado (2011)	To identify the counterstories about undocumented Mexicana students who persist	In-depth interviews and focus group	Themes by consensus	Undocumented students persist in part by mobilizing their invisibility and silence.	4	4F	4L
Total					970	364M/606F	83Af/ 817L/ 2Ar/ 68 n/a



## **What psychological needs are satisfied when URM students participate in supportive academic and social experiences?**

**I'll be there; anything you can do, I can do; and together again.** Three themes were co-constructed while addressing the first research question: I'll be there, Anything you can do, I can do, and Together again. These themes describe how supportive academic and social experiences satisfy all three psychological needs of autonomy, competence, and relatedness. Students satisfied their need for autonomy as they chose to participate in these activities out of interest and passion with very little external influence. Competence was engaged and satisfied as students identified successful strategies to achieve their goals through ethics of hard work and perseverance. Finally, relatedness was satisfied as family, role models, and peers encouraged and connected with the participants in intimate ways.

These findings are supported by the narratives of previous research, as well (Barr et al., 2008; Davis, Jenkins, & Hunt, 2003; Garcia & Hurtado, 2011; Griffin, 2006; Hurtado & Carter, 1997; Muñoz & Maldonado, 2011) but also extend previous findings. For example, previous research identified the importance of participation in clubs or organizations. To answer how these programs work, meta-analysis found that autonomy increases a sense of belonging and increases exposure to academically related activities. Autobiographical narratives such as Davis et al.'s (2003) *The Pact* highlight the impact of programs such as Seton Hall University's Pre-Medicine/Pre-Dental Plus program that encourages URM students to pursue health careers. Additionally, through the narratives of undocumented Mexican students who silenced themselves to stay below the radar, one can identify how their necessary silence separated them from many of the opportunities often offered in traditional student groups (Muñoz & Maldonado, 2011). Through intimate

support systems, both formal and informal, in which prehealth URM students could study and socialize, these programs satisfied students' needs for autonomy, competence, and relatedness and support persistence.

**How does need satisfaction support URM students' abilities to persist in the face of challenge?**

**Say it loud: I'm \_\_\_\_ and I'm proud.** Through meta-analysis, the additional narratives allowed for the voices of almost 900 URM students and practitioners to be heard. While many themes found in the current study were also found in the meta-analysis, some unique perspectives emerged. First, the stories of URM students' persistence are often told from the perspective of African Americans and Latino males (Quiñones-Hinojosa & Rivas, 2011; Tucker & Winsor, 2013; A. White & Chanoff, 2011). This meta-analysis gave voice to the silenced voice of Latina women and Arabic woman. As a result, these narratives gave voice to work-life balance and the impact of religious identity on persistence.

The current study found that, for study participants, religious identities negatively impacted classroom interactions because of discrimination and stereotyping. This required students to satisfy their needs for autonomy by overcompensating in areas such as relatedness. This unique finding, specific to the potential negative influence of religious identity on motivation, parallels the impact of any prejudice and discrimination on the persistence process of URM students. Previous research demonstrated that students who experienced negative encounters as a result of their identity, spent more time in isolation instead of in groups, which supported their need for autonomy, competence, and relatedness (Nora, Barlow, & Crisp, 2005; A. White & Chanoff, 2011). However, in the

examples of successful URM persisters found in this meta-analysis, students persisted in challenging environments by relying on their psychological need for relatedness and competence. Likewise, URM students persisted in environments that challenged their competence by relying on their need for autonomy and relatedness. Study participants demonstrated the ability to adapt themselves in challenging situations by satisfying their “other” psychological needs. This is a reminder that, while academic environments need to become more inclusive, URM students can and do persist successfully despite discrimination and stereotyping.

**Faith is.** A finding of the current study, not identified in previous research, is the role of faith in URM students’ persistence process. All of the participants in the current study acknowledged spirituality as a supporter of the integration of their persistence with their most autonomous selves. The impact of faith as an autonomous motivator was identified to differing degrees in the narratives of numerous autobiographical narratives previously collected (Davis et al., 2003; Quiñones-Hinojosa & Rivas, 2011). Faith supports autonomous behavior, but the interaction of faith and autonomous motivation should be explored in more depth. There are questions yet to be answered about how faith and spirituality impact motivation. For some students, the role of faith has been underestimated. In order to support the full autonomous experience of URM students, as they persist, acknowledgment of faith and spirituality will be necessary.

**It’s a hard knock life.** While the financial concerns are mentioned in previous literature (Ficklen & Stone, 2002; Hernandez & Lopez, 2004; Institute of Medicine, 2002), as a hindrance to persistence in URM students, the participants in this study were quite resilient and able to use the challenging circumstances such as financial difficult as a

motivator. When examining the narratives of other low-income URM students who persisted, these students described how their financial status contributed to their ability to overcome. Participants recognized the challenge but did not allow the challenge to overwhelm them and hinder their persistence. For example, Dr. Quiñones's illegal immigration to the United States was out of financial necessity, but his financial status did not hinder his ability to persist (Quiñones-Hinojosa & Rivas, 2011). Dr. Davis was the fifth of six children in a crime and drug ridden neighborhood, yet, despite his physical and financial circumstances, he satisfied his need for competence and was able to persist and achieve (Davis et al., 2003). Finally, Augustus White described falling from his middle class life after his father's death, but, because of his family's friendships, he was able to obtain admission to a private, elite school for boys in Massachusetts (A. White & Chanoff, 2011). Successful URM students persisted because they identified their financial hardship as a motivator or a barrier whose hindrances do not outweigh the future benefits of persisting. While research literature (Institute of Medicine, 2002) remarks on the amount of debt and loans students take as a barrier, the narratives in the current study demonstrated that financial barriers contributed to the autonomous process in which URM students persisted. This study in no way desires to minimize the need for additional financial resources to support URM student persistence into health careers. But it does acknowledge that students who successfully persist recognize the barriers but are not overwhelmed by the challenge. Likewise, as students persist despite their financial circumstances, educators are given opportunities to support persistence by helping students who are overwhelmed by the financial challenges identify ways to overcome those challenges and use them as motivation to persist anyway.

**Conjunction junction.** The second unique finding that emerged from the meta-analysis was the difference between current URM physicians' perception of their competence and the perceptions of current URM prehealth students. The perspective of URM students who are not yet in medical school and those URM physicians who have completed their studies are different and unique and should be acknowledged as such. Current health professionals were able to clearly articulate the successful academic practices in their autobiographical narratives (Davis et al., 2003; Quiñones-Hinojosa & Rivas, 2011; A. White & Chanoff, 2011). URM physicians reflected on their competence positively while sometimes brushing over academic challenge, while URM students who have not completed their studies brush over their competence and focus on the academic challenges they must overcome. Garcia and Hurtado (2011) found that academic preparedness, as a function of GPA, for Latina/o students was significant to persistence; yet, in the current study, no students perceived themselves as academically prepared. Despite GPA, all of the students described areas in which they were insecure and perceived a lack of competence in which they focused on improving (Tucker & Winsor, 2013). For URM prehealth students, academic challenge was a motivator to develop and satisfy their need for competence. In contrast, URM physicians' narratives were filled with numerous perceptions of competence (Davis et al., 2003; Quiñones-Hinojosa & Rivas, 2011; A. White & Chanoff, 2011). While academic preparedness is a predictor of persistence quantitatively, it does not acknowledge URM students' weak perceptions of competence qualitatively. What students believe about their ability to persist shapes their academic strategies in the classroom (Steele, 1997; Steele & Aronson, 1995; Strayhorn, 2013). It may not be until these students are closer to obtaining a degree that their perception of

competence will increase. As students persist, they may not accurately evaluate their preparedness and may need assistance in understanding what it is to be academically prepared.

**Don't let me down.** A significant finding in previous research has been the role of social factors (i.e., role models, peers, and family) on the persistence process of URM students (Arbona & Novy, 1990; Frierson, 1988; Fries-Britt, 1997; Tucker & Winsor, 2013). In the current meta-analysis, supportive relationships with family members often satisfied the need for relatedness in URM students and physicians who persisted and continued to persist into health care careers through their approval or disappointment (Quiñones-Hinojosa & Rivas, 2011; Tucker & Winsor, 2013; A. White & Chanoff, 2011). Successful URM prehealth students used both disappointment and approval as motivators to accomplish their goals. While the research narratives allowed for the co-construction of themes such as the role of family on the persistence process, the family members, themselves, often did not recognize the power of their influence on educational persistence. For this reason, the impact of family introjects on the persistence of URM students should inform future interventions and implications.

## **Implications**

### **Theoretical**

The findings of the current study are consistent with current motivational theories (Deci & Flaste, 1996; Deci & Ryan, 1985, 2002; Deci & Vansteenkiste, 2004; Graham, 1994; Griffin, 2006; Hwang et al., 2002; Tonks, 2006) but extend the theoretical understanding of SDT by providing counterstories. Research to date has focused on autonomy as a primary need, which is supported by the secondary and tertiary needs of

competence and relatedness. The current study's findings highlight the significant need for relatedness in the form of family, peers, community responsibility, and role models as they are essential to successful persistence and the support of autonomy in URM students. Participants referred to the satisfaction of their need for relatedness, more often than they spoke about their needs for autonomy and competence (Table 5). The predominance of the psychological need of relatedness in student narratives, in this study, reinforces the findings of Tucker and Winsor (2013) in which it was determined that the need for relatedness played an important and unique role in persistence. These results do not contradict theory but allow for expansion of theory and measurement to explore how the satisfaction of relatedness may contribute to persistence (Cokley, 2014). An expansion of theory will allow researchers to more widely apply SDT to diverse populations. In addition, an expansion of theory will allow for further investigations to make clear the interaction of autonomy, competence, and relatedness on each other. With this information about how academic and social experiences promote persistence and how psychological needs interact throughout URM students' persistence process, educators can intentionally shape future programming to satisfy students' needs for autonomy, competence, and relatedness.

## **Methodology**

The final research question of this study asked, to what extent are the results of previous research and the current study's in-depth interviews (i.e., memory and photo-elicited) contradictory or complementary? This question can be addressed by discussing the methodological implications of the qualitative methods and analysis. The current study used storytelling interviews, photo-elicited interviews, and memos as methods of data

collection. Analysis was conducted using narrative analysis, semiotics, and meta-analysis. The incorporation of multiple methods and analysis allowed for the retelling of stock stories in ways that can be used to transform theory and practice (Bell, 2010).

**Photo-elicited interviews.** Storytelling narratives provided rich descriptions of how students satisfied their needs for autonomy, competence, and relatedness. But the addition of photo-elicited interviews after storytelling interviews was complementary and allowed a more complex and comprehensive understanding of educational persistence in URM students. The photo-elicited interviews provided unique insight into how participants perceived their motivation (Clark-Ibáñez, 2004; Epstein et al., 2008; Harper, 2002; Rose, 2011). The visual images discussed by participants allowed for deeper reflection as they had to explain and justify what particular images or experiences contributed to their persistence process. In addition, the use of photography confirmed findings from the storytelling interviews and highlighted the absence of others. However, the photo-elicited interviews did not reveal a truth, but multiple interpretations of how psychological needs are expressed as URM students engaged in educational persistence. When used in combination with the storytelling interviews, photo-elicited interviews revealed a complex interaction of autonomy, competence, and relatedness in students' persistence process. Through the future use of an uncommon method in educational psychology, such as photo-elicited interviews, educational researchers can confirm or identify themes omitted by participants.

**Memo writing.** The process of engaging in memo writing allowed for an examination of how my experiences, assumption, values, and feelings related to my research. The memo writing that occurred throughout the entire research process allowed



me as a researcher to reflect on my assumptions and how those assumptions bring both disadvantage and advantage.

Memo writing allowed me to develop a clarity of purpose. As I listened to the narratives of the participants, I was able to organize, analyze, and summarize common experiences through my memo writing. I also identified, through memo writing, that the current study is fueled by my passion both personal and professional. Through what is often seen as mundane routines of gathering data, transcribing, and analysis, I explored my varied emotional responses to students' experiences. For example, David reflected on his academic performance by saying, "I never withdrew. I ended up getting a C in microbiology...a C+ I think. And yeah, I completed it." The following memo highlighted the importance of memo writing as a method because it reiterated the purpose of the study.

David spoke of his academic performance with pride. He demonstrated a satisfaction for his need of competence. However, from my administrative perspective, he showed a lack of competence and readiness for medical education. C or C+ is not competitive for admission and most competitive students are more aware of their academic weaknesses. Unlike most competitive students, David was unaware of how his grades may be perceived by admission committees. My role as researcher is clashing with my role as an advisor. The current study is not just theoretical, it is practical. Supporting the persistence of URM students will require educators and administrators to address the question of how they can guide students to become more aware of the accuracy of their perceptions?

Through reflective memo writing, I was able to illuminate, energize, and assess the unique role that I bring to the study of URM educational persistence.

**Meta-analysis.** The use of autobiographical narratives and previous educational research to analyze the findings of the current study is a method of meta-analysis acknowledged in research but not frequently used in educational psychology (Denzin & Lincoln, 2012; Stall-Meadows & Hyle, 2010; Timulak, 2009). The current study relied on Stall-Meadows and Hyle's (2010) grounded meta-analysis and Charmaz's (2006) constructivist grounded theory procedures to co-construct themes and patterns for theory building. Each case narrative was evaluated and selected for qualitative meta-analysis and then analyzed using initial coding, focused coding, and memo writing. The use of constant comparative methods allowed the researcher to increase the study's internal validity and permitted theoretical sampling in which the data no longer sparked theoretical insights. The use of this meta-analytic approach allowed for a more complex understanding of the multifaceted persistence process of URM students.

### **Educational**

The present study focuses on the satisfaction of psychological needs as URM students persist to careers in health care. This topic is being acknowledged as important because of the shortage of minorities in the health care pipeline. Through the telling of concealed, resistance, and transforming narratives, one can identify how the satisfaction and perception of psychological needs are associated with educational persistence (Bell, 2010).

Through the retelling of old and often inaccurate stock stories, the current study gave voice to silenced narratives, as well as provided an opportunity for social action in which interventions can be developed. The narratives provided in this study may be helpful in teaching external autonomy support to educators, administrators, and parents.

Using Deci and Ryan (2002) four step process (1) perspective taking, (2) provision of rationale, (3) choice, and (4) the acknowledgement of emotions. Stakeholders in the persistence process of URM students can support and encourage success. For example, external autonomy support training can enhance the impact advisers have on URM student groups. An autonomy supporting advisor is able to support the satisfaction of students' psychological needs by encouraging students to align tasks with their interests, finding multiple solutions to problems, and encouraging open debate (Stefanou, 2004). With this information, administrators can encourage the intentional selection and training of advisors and other influential educators. The educational implications are not limited to advising but bleed over into other areas such as how parents trained in external autonomy support can extend psychological support to students and how URM students, educated about their own autonomy support, can engage in self-reflection about their own persistence process. Finally, while training autonomy support is a promising intervention, it is realistic to explore the limitations to teaching external autonomy support to enhance persistence (i.e., what timing and audience is most appropriate to train and receive training?)? These examinations are significant, above all, because interventions allow educators, administrators, and parents to contribute to increasing the number of URM health care providers who will ultimately treat the medically underserved URM populations.

### **Recommendations for Future Research**

Researching the persistence process of URM students and assisting students into the STEM pipeline is an area of expanding research, but one that will continue to receive increasing attention. The current study focused on how URM students can maintain motivation to persist by successfully satisfying their needs for autonomy, competence, and

relatedness. This research builds the groundwork for continued research and discussion around factors that contribute to URM students' successful persistence in education from early childhood to adulthood. It is proposed that future research expand the findings of the current study by addressing a) the role of faith and motivation; b) the impact of trained educators to provide external autonomy support to assist prehealth students; (c) the theoretical and methodological understandings of the interaction of autonomy, competence, and relatedness in diverse populations; (d) the continued use of photo-elicited interviewing and meta-analysis in educational psychology; and (e) the strategic dissemination of research findings to practitioners.

As discussed earlier, the themes of faith and spirituality can contribute to the persistence process of URM students in both negative and positive ways. Participants described how they experienced discrimination as a result of their faith but also how they were able to autonomously persist by relying on faith to overcome difficult circumstances. Future research should explore the role of faith and spirituality on autonomous persistence (Baard, 2002; Dierendonck, 2011). Questions might address how religion or spiritual practice is associated with autonomous motivation, and examples of both autonomous and controlled motivation in the lives of those of faith might be provided. While the participants in this study examined the impact of Christianity and Islam on their persistence process, additional research should include not only these spiritual perspectives but also the beliefs and practices of others.

Future research into advising and URM student programming should examine what educators are doing to support autonomy, competence, and relatedness. Numerous institutions are developing minority-mentoring initiatives and financial aid initiatives, but

there are reasons to place special attention on areas that satisfy psychological needs such as building community (relatedness), helping students to listen to and analyze advice (competence), assessing students' strengths and identifying successful academic strategies (competence), and encouraging students to take ownership of their persistence process (autonomy). By exploring the practical aspects of programming that external autonomy support to students, institutions may be more effective in encouraging persistence. Furthermore, advisors to URM student groups and programming should not be chosen haphazardly, and, once chosen, advisors should receive additional training about the persistence process of URM students to ensure that the efforts made to develop effective programming are sustained.

The current study observed that URM prehealth students satisfied their need for relatedness, particularly during challenging times, over other psychological needs, and this finding impacts future theoretical explanations. This finding should continue to be explored in future research to examine the interaction of the need for and satisfaction of relatedness with other needs, like competence and autonomy, in URM populations. The call for an expansion of motivational theories such as SDT has been acknowledged in previous research (Cokley, 2014; Fries-Britt, 1997; Hwang et al., 2002; Tonks, 2006; Tucker & Winsor, 2013) but has not been aligned with SDT's psychological needs. For the need for satisfaction of URM students to fit into traditional theory, current theoretical explanations may need additional clarification, particularly to the impact of the need for relatedness.

The use of photo-elicited interviewing and meta-analysis is rare in qualitative educational psychology research and, in the future, should be used to enhance the findings

of the current study. This is the first study, to date, to use a constructivist grounded meta-analysis to understand persistence. The current meta-analysis relied on co-construction of knowledge to answer the *why* questions with a focus on research reflexivity and relativity in contrast to traditional grounded meta-analysis, which focuses on the *what* and *how* of these motivational process. While not mutually exclusive, the use of a constructivist grounded theory or grounded theory informed by social constructionism may provide more colorful narratives from which to develop noteworthy theoretical implications.

Finally, the research results of this and future research should be disseminated to diverse audiences. In order for the narratives of this study and future research to become transformative, researchers must present the results in ways that will cause social action. This will require the strategic packaging of research in ways to reach policymakers, administrators, faculty, advisors, and students whom it is intended to serve. By doing so, researchers and educators can make the URM pipeline more accessible to future health professionals.

### **Limitations**

These recommendations are not made without acknowledging that future research is necessary to justify the importance of these findings, as there are study limitations. Limitations of qualitative research include the selection of questions and coding of transcripts (Ezzy, 2002). However, the most notable limitation is that of my own subjectivity, particularly when using a social constructionist approach.

While my own subjectivity was discussed in Chapter 3, my assumptions and experiences continued to impact my analysis and reflections upon co-constructing the findings of the current study. As an African American woman whose job it was at the time

of data collection to develop a pre-matriculation program for URM students, I had a unique insight into URM prehealth students' persistence process. All of the participants spoke easily of their persistence process and acknowledged in passing that the interview process "felt good," because they felt understood. However, this familiarity with the process impacted my response to students' reflections of their own abilities and, in some cases, was not genuine as my familiarity was occasionally fake. When speaking with Alejandra, I found myself nodding with familiarity as she spoke in Spanish, while internally cringing, because I had no idea what she said. In these moments, I realized my own lack of authenticity and desired to be more transparent. Similarly, I nodded when David spoke of his ability to persist successfully despite being color-blind; however, I had trouble restraining judgment in my memos:

I am surprised at some students' intense desire to persist in healthcare despite some significant challenges both physical and academically. David's desire to persist into an MD/PHD program will require exemplary academic record and minimal physical accommodations. David's storytelling interviews revealed that he was not an academically strong student on standardized exams or in the classroom. While his classroom performance was often hindered by his own physical health, he also disclosed a significant disability of color blindness, which will hamper his ability to practice medicine. Medical care relies on being able to see skin redness, jaundice, blood in stool, and examine lab work. While doctors can practice and be color blind, a high level of awareness is needed to guide one's specialty choice and overcome deficiencies. David does not acknowledge that his disability is

significant to his career choice or his persistence process. There is a level of denial about one's ability to overcome realistic challenges.

Finally, I nodded and wrote as Shelbra discussed her desire to enter the medical field to have the monetary pleasures of life:

While I would like to believe that all of the students who shared their stories will persist to success in a healthcare field, I find that there are some students whose narratives do not predict success over the long-term unless their need satisfaction shifts. In some cases, persistence does not guarantee success. Shelbra, for example, was intensely focused on the monetary perks of persistence, but did not describe a desire to enter the field for the sake of curiosity and interest. Without the development of autonomous and intrinsically motivated behaviors, it does not seem likely she will achieve.

These memos show that I had strong feelings about David's and Shelbra's ability to persist successfully. As a researcher, I shared the experience of many educators who advise students about their persistence process. I had an emotional reaction to what I viewed as significant barriers to success; however, the way in which I supported these students' autonomy, competence, and relatedness was not by enlightening them about what they could not do but by allowing them the opportunity to self-reflect so that they could make their own informed choices. Through my own reflections of my biases and assumptions, I was able to develop a greater understanding of how psychological needs support persistence but also how I, as a researcher and educator, can influence the persistence of my students.



## **Summary and Conclusion**

This qualitative study explored how URM students use the satisfaction of their psychological needs to persist in health careers. The theoretical framework proposed was motivation theory, specifically self-determination theory. The research literature (Antony, 1996, 1998; Barr et al., 2008; Lovecchio & Dundes, 2002; Maestas et al., 2007) implied that the academic, social, and motivational barriers to persistence are numerous, but little is known about the successful motivational approaches to achievement for URM students. According to the participants interviewed in this study, all three psychological needs are necessary to guide and facilitate successful persistence, but each need plays a unique role in persistence, particularly during times of challenge. Relatedness played a unique role in the challenging persistence process of the current study, but also in the meta-analysis. The study themes revealed that there are concrete ways in which students are experiencing autonomy, competence, and relatedness. It is through these unique student experiences that numerous recommendations were made.

Building on Tucker and Winsor's (2013) findings, the current study explained how URM students engage in persistence, especially during difficult times, by tapping into their satisfaction of autonomy, competence, and relatedness. Not only was the current study able to explore how URM students persist, it confirmed and complemented previous research findings (Barr et al., 2008; Hernandez, 2000; Hernandez & Lopez, 2004; Tucker & Winsor, 2013), which can inform future interventions to retain URM students in the health career pipeline. Through the use of the current study's findings, there is an implicit

invitation to all community stakeholders to support the persistence of URM students in the health professions. While URM students have persisted and continue to persist, it is the community's responsibility to assure that they do.

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## APPENDIX A

### **Copyright Documentation**

#### **Copyright Documentation for Table 1**

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## Copyright Documentation for Figure 1

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6/24/2014

Constance Tucker  
Assistant Director of Faculty Development  
University of Tennessee Health Science Center  
[ctucker9@uthsc.edu](mailto:ctucker9@uthsc.edu)

Dear Ms. Tucker:

We are in receipt of your request to reproduce Figure 1 from the article

Deci, E. L., & Ryan, R. M. (2000)  
The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior  
*Psychological Inquiry* 11(4): 227-268.

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With best wishes,

Gillian

Gillian Rose

Professor of Cultural Geography

Associate Dean (Research), Social Sciences Faculty The Open University

office: room 206, Gardiner 2

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web: [http://www.open.ac.uk/socialsciences/staff/people-profile.php?name=Gillian\\_Rose](http://www.open.ac.uk/socialsciences/staff/people-profile.php?name=Gillian_Rose)

blog: [visualmethodculture.wordpress.com](http://visualmethodculture.wordpress.com)

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Chris Pickering

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## APPENDIX B

### IRB Approvals

Hello,

The University of Memphis Institutional Review Board, FWA00006815, has reviewed and approved your submission in accordance with all applicable statutes and regulations as well as ethical principles.

**PI NAME:** Constance Tucker

**CO-PI:** Denise Winsor

**PROJECT TITLE:** Career Persistence in Underrepresented Pre-health Students

**FACULTY ADVISOR NAME (if applicable):** Denise Winsor

**IRB ID:** #2505

**APPROVAL DATE:** 1/14/2013

**EXPIRATION DATE:** 1/14/2014

**LEVEL OF REVIEW:** Expedited Modification

*Please Note: Modifications do not extend the expiration of the original approval*

Approval of this project is given with the following obligations:

1. If this IRB approval has an expiration date, an approved renewal must be in effect to continue the project prior to that date. If approval is not obtained, the human consent form(s) and recruiting material(s) are no longer valid and any research activities involving human subjects must stop.
2. When the project is finished or terminated, a completion form must be completed and sent to the board.
3. No change may be made in the approved protocol without prior board approval, whether the approved protocol was reviewed at the Exempt, Expedited or Full Board level.
4. Exempt approval are considered to have no expiration date.

Thank you,

Ronnie Priest, PhD

Institutional Review Board Chair

The University of Memphis.*Note:*

*Review outcomes will be communicated to the email address on file. Official letters are no longer being issued unless required. This email should be considered an official communication from the UM IRB.*

*Please contact the IRB at [IRB@memphis.edu](mailto:IRB@memphis.edu) if a letter on IRB letterhead is required.*



24 September 2014  
Constance R Tucker, MA  
UTHSC - VC-AFSA - Health Careers  
Program Ste 1031, 910 Madison  
Avenue  
Memphis, TN 38163-2242

**Re: 11-01666-XP**

**Study Title:** Career Persistence of Premedical, Prepharmacy and Predental Minority Students

Dear Ms. Tucker:

The Administrative Section of the UTHSC Institutional Review Board (IRB) reviewed your application to **continue** your previously approved project, referenced above. It has determined that your application is eligible for **expedited** review under 45 CFR 46.110(b)(1), category (8c). The IRB reviewed your renewal application and determined that it does comply with proper consideration for the rights and welfare of human subjects and the regulatory requirements for the protection of human subjects. Therefore, this letter constitutes approval of your renewal application. **The Board understands that recruitment for this study is closed; therefore, the consent form has not been stamped for re-approval.** Approval of this study will be valid from 09/24/2014 to 10/15/2015.

In the event that subjects are to be recruited using solicitation materials, such as brochures, posters, web-based advertisements, etc., these materials must receive prior approval of the IRB. Any revisions in the approved application must also be submitted to and approved by the IRB prior to implementation. In addition, you are responsible for reporting any unanticipated serious adverse events or other problems involving risks to subject or others in the manner required by the local IRB policy.

Finally, **re-approval** of your project is required by the IRB in accord with the conditions specified above. You may not continue the research study beyond the time or other limits specified unless you obtain prior written approval of the IRB.

Sincerely,

Signature applied by Holly A Herron on 09/24/2014 04:38:29 PM CDT

Signature applied by Terrence F Ackerman on 09/24/2014 04:39:06 PM CDT

Holly A Herron, BA, CIM  
IRB Administrator  
UTHSC IRB

Terrence F Ackerman, PhD  
Chairman  
UTHSC IRB

## APPENDIX C

### Informed Consent

#### Career Persistence of Premedical, Prepharmacy, and Predental Minority Students

**Principal Investigator:** Constance Tucker  
8 South Dunlap, BB9  
Memphis, TN 38119  
Ctucker9@uthsc.edu or 901-448-6399

**Sub-Investigators:** Sade' Baker  
Nakeshi Dyer

#### 1. INTRODUCTION:

You are being given the opportunity to participate in this research study because you are an underrepresented student interested in working in the field of medicine, pharmacy, or dentistry.

Research studies include only people who choose to take part. Please read this consent form carefully and take your time making your decision. Please ask us to explain any words or information that you do not clearly understand. We encourage you to talk with your family and friends before you decide to take part in this research study. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

Please tell the study staff if you are taking part in another research study.

The purpose of this study is to explore the academic and social issues that might contribute to underrepresented minority (URM) students' decreased career persistence in medicine, pharmacy, and dentistry. Underrepresented minority students in this study are self-defined but loosely defined as African/African American, Hispanic/Latino, and Native American. More importantly, this research will focus on a small group of premedical, prepharmacy, and predental students who participated in the Tennessee Institutes for Pre-Professionals (TIP) summer program at the University of Tennessee Health Science Center. This study will examine what specifically underpins the broader academic and social contributors of URM students' career persistence.

Approximately 15 people will be participating in this study locally.

The study will take place at the three locations:

1. University of Tennessee Health Science Center, General Education Building, BB9, Memphis, TN 38163,
2. Memphis Panera, 4530 Poplar Ave. #101, Memphis, TN 38117
3. Nashville Panera, 2829 West End Ave., Nashville, TN 37203.

Your participation in this study will last up to three (3) hours total across three interviews.

#### 2. PROCEDURES TO BE FOLLOWED:

1. You will have an initial meeting with an investigator and review the informed consent, and all questions will be addressed. If you agree to volunteer, you will sign the informed consent.

The investigator will collect your demographic form and your personal statement from your TIP program application.

2. Research questions will be developed from the personal statement and demographic data in your application. These questions will include themes regarding your career selection process and challenges. The questions will also be about how you overcome academic challenge, how you became interested in your health career choice, and what keeps you motivated to achieve.
  - a. The initial interview will consist of:
    1. Obtaining informed consent
    2. Overview: The interview is an opportunity for you to engage in storytelling about your real life experiences.
    3. A review of your demographic information on your application
    4. Interesting information about your background not included on the application
    5. Exploration of your academic and career development process (i.e. how you navigated successful and challenging experiences)
  - b. The second interview will include a memory exercise to help you reflect on present and past memories in five-to-ten year increments. You will recall actual conversations that have occurred during each time period that have impacted their career motivation.
  - c. In the final interview, you will bring a photo or photos to describe your motivation to pursue a career in healthcare. These photos will assist you in describing feelings, information, and memories that are represented in still photography.
3. Your interviews will be audio recorded, transcribed, and coded. Your interviews and audio recording are being performed solely for research purposes. Summary results will be compiled and sent back to you to cross-check, and thereby increase the validity of results.

### **3. RISKS ASSOCIATED WITH PARTICIPATION:**

There are no physical risks associated with this study. Completion of the interview and having your voice recorded may make you feel uncomfortable or cause troublesome feelings or emotions. You may refuse to answer any of the questions and you may take a break at any time during the study. There is also a potential risk of loss of confidentiality as someone who listens to your audio recording might identify you. Every effort will be made to keep your information confidential; however, this cannot be guaranteed.

The research may involve risks to you which are currently unforeseeable. Any significant new findings developed during the course of this research project, which may impact upon the safety and efficacy of the procedure under study and consequently influence your willingness to continue participation, will be provided to you.

### **4. BENEFITS ASSOCIATED WITH PARTICIPATION:**

This study has the potential to benefit not only you, but the way in which advising of premedical, prepharmacy, and predental underrepresented students is conducted and perceived. You may receive benefit through self-reflection as you talk about your personal career development process; however, this cannot be guaranteed.



## **5. ALTERNATIVES TO PARTICIPATION:**

You may receive academic advising and/or personal statement review without participating in this study. You will not have to undergo an audio recorded interview if you do not participate in this study.

## **6. CONFIDENTIALITY:**

All your paper research records will be stored in locked file cabinets and will be accessible only to research personnel.

All your electronic research records will be computer password protected and accessible only to research personnel.

Under federal privacy regulations, you have the right to determine who has access to your personal health information (called “protected health information” or PHI). PHI collected in this study may include your medical history and basic demographic information. By signing this consent form, you are authorizing the researchers at the University of Tennessee to have access to your PHI collected in this study. The Institutional Review Board (IRB) at the University of Tennessee Health Science Center may review your PHI as part of its responsibility to protect the rights and welfare of research subjects. Your PHI will not be used or disclosed to any other person or entity, except as required by law, or for authorized oversight of this research study by other regulatory agencies, or for other research for which the use and disclosure of your PHI has been approved by the IRB. Your PHI will be used only for the research purposes described in the Introduction of this consent form. Your PHI will be used until the study is completed.

You may cancel this authorization in writing at any time by contacting the principal investigator listed on the first page of the consent form. If you cancel the authorization, continued use of your PHI is permitted if it was obtained before the cancellation and its use is necessary in completing the research. However, PHI collected after your cancellation may not be used in the study. If you refuse to provide this authorization, you will not be able to participate in the research study. If you cancel the authorization, then you will be withdrawn from the study. Finally, the federal regulations allow you to obtain access to your PHI collected or used in this study.

You will not be identified in any presentations or publications based on the results of this research study.

Your audio recording will be maintained at UTHSC during the study and will be labeled with your name and stored in a locked cabinet. Your recording will be destroyed after it has been transcribed by your interviewer.

## **7. COMPENSATION AND TREATMENT FOR INJURY:**

You are not waiving any legal rights or releasing the University of Tennessee or its agents from liability for negligence. In the event of physical injury resulting from research procedures, the University of Tennessee does not have funds budgeted for compensation either for lost wages or for medical treatment. Therefore, the University of Tennessee does not provide for treatment or reimbursement for such injuries.

If you suffer a research related injury, study staff will provide you with a referral to appropriate health care facilities.

You and/or your insurance carrier will be billed for the costs associated with the medical treatment of a research related injury.

Compensation will not be available to you for any ancillary expenses incurred as the result of research related physical injuries, such as additional hospital bills, lost wages, travel expenses, etc.

Compensation will not be available to you for any non-physical injuries that may be incurred as a result of research participation, such as exposure to criminal or civil liability, or damage to your reputation, financial standing, or employability.

## **8. QUESTIONS:**

If you have any questions about this research study you may contact Constance Tucker at ctucker9@uthsc.edu or 901-448-5056.

In the event of a research related injury, contact Constance Tucker at 901-448-5056. This is an office number answered 7 days a week: Monday through Friday (8am-7pm) and Saturday (10am-5pm) and Sunday (2pm-6pm). After business hours, voicemail will forward calls to an emergency pager or voice mail.

You may contact Terrence F. Ackerman, Ph.D., UTHSC IRB Chairman at 901-448-4824 or visit the IRB website at [http://www.uthsc.edu/research/research\\_compliance/IRB/participant\\_complaint.php](http://www.uthsc.edu/research/research_compliance/IRB/participant_complaint.php) if you have any questions about your rights as a participant in this study or your rights as a research subject.

## **9. PAYMENT FOR PARTICIPATION:**

You will receive a Darden restaurants gift certificate at the end of each interview for participating in this research. The amount of each gift certificate is as follows:  
1st interview: \$25; 2nd interview: \$50; 3rd interview: \$75

## **10. COSTS OF PARTICIPATION:**

There are no costs for you to participate in this study.

## **11. PREMATURE TERMINATION:**

Your participation in this research study may be terminated by the investigator without regard to your consent if you experience extreme psychological effects from the interviewing sessions, such as PTSD, severe stress, and/or anxiety.

## **12. VOLUNTARY PARTICIPATION:**

Your participation in this research study is voluntary and your refusal to participate or your decision to withdraw will involve no penalty or loss of benefits to which you are otherwise entitled.

If you are a student of the University of Tennessee, participating or not participating in this study will in no way influence your grade in any course.

**13. CONSENT OF SUBJECT:**

You have read or have had read to you a description of the research study as outlined above. The investigator or his/her representative has explained the study to you and has answered all the questions you have at this time. You knowingly and freely choose to participate in the study. A copy of this consent form will be given to you for your records.

---

**Signature of Research Subject**

---

**Date**

---

**Time**

---

**Printed Name of Research Subject**

---

**Signature of Person Obtaining Consent**

---

**Date**

---

**Time**

---

**Printed Name of Person Obtaining Consent**

In my judgment, the subject has voluntarily and knowingly given informed consent and possesses the legal capacity to give informed consent to participate in this research study.

---

**Signature of Investigator**

---

**Date**

---

**Time**